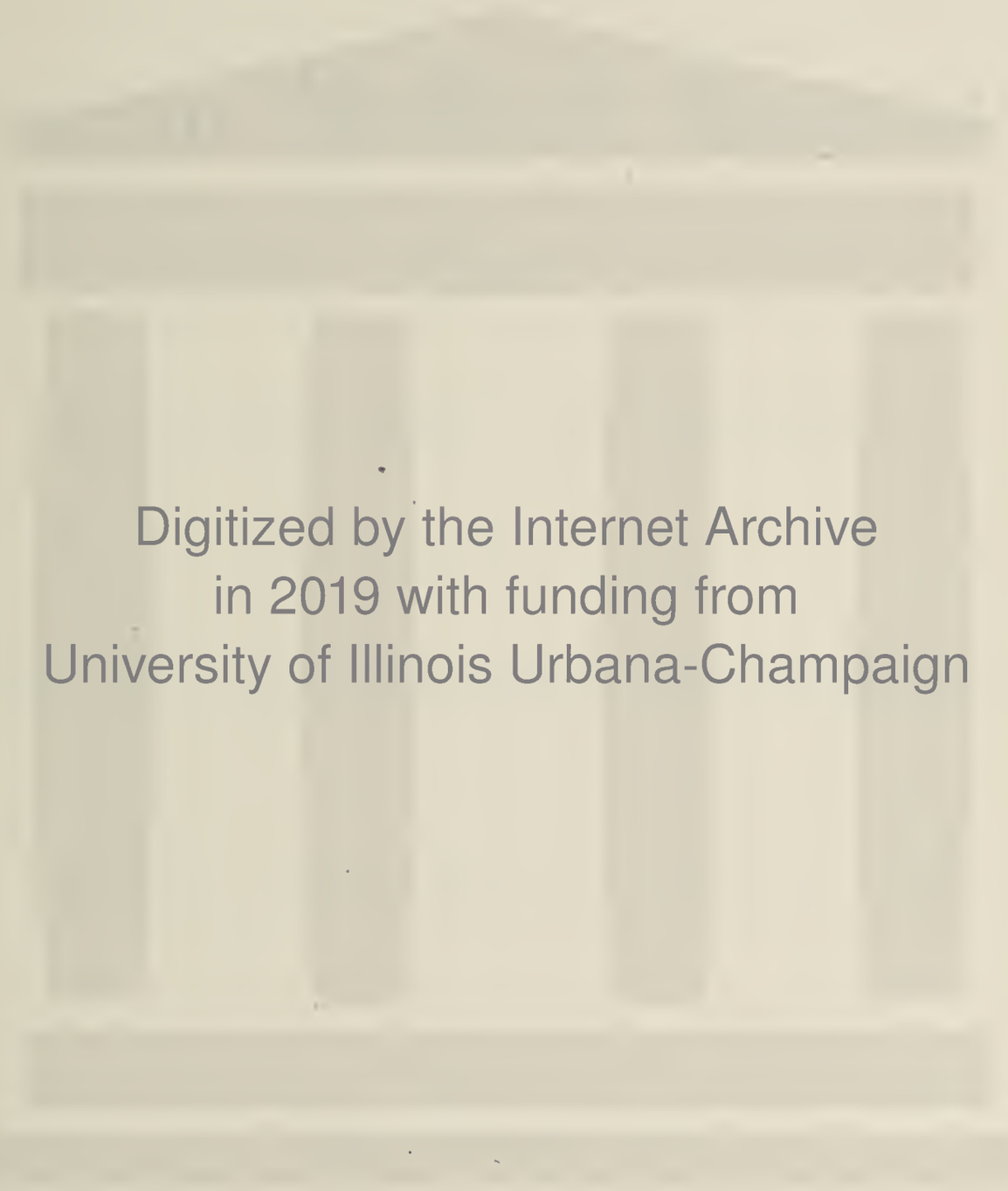


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ORIGINAL ARTICLES.

ADDRESS IN STATE MEDICINE.

BY DEERING J. ROBERTS, M.D., OF NASHVILLE, TENN., CHAIRMAN OF THE SECTION ON STATE MEDICINE.

Read to the American Medical Association, May, 1884.

MR. PRESIDENT AND GENTLEMEN OF THE ASSOCIATION:

The Section of State Medicine, as many of you are doubtless aware, was established and thoroughly organized at the twenty-fifth annual meeting of the Association, at Detroit, in 1874, and has been presided over by some of the ablest, most learned, and illustrious members of this Association. In accepting the chairmanship one year ago, it was with no inconsiderable degree of apprehension and doubt as to my ability to properly discharge one of the duties of the position, and to place before you an address worthy the attention of those who have listened with pleasure and benefit to such men as Bowditch, of Boston; Kedzie, of Michigan; Cabell, of Virginia; Hunt, of New Jersey; and others whose names have been heralded far and wide, at home and abroad, as active, earnest, and able workers in this most important department of medical science.

The work of this Section since its organization, as well as that in its particular line in the earlier years of the Association, whether embraced in the reports of the various committees on Epidemic Diseases, or the individual papers and essays in the special province of State Medicine, forms a most important part of the published Transactions in each year of the Association's existence, and has accomplished fully as much as other even more popular Sections, towards adding to the glory of the Association, its prestige and its reputation; towards giving "frequent, united, and emphatic expression to the views and aims of the medical profession," or "cultivating and advancing medical knowledge; elevating the standard of medical education; promoting the usefulness, honor, and interests of the medical profession; enlightening and directing public opinion; exciting and encouraging emulation and concert of action in the profession; and facilitating and fostering friendly intercourse between those who are engaged in it." Careful examination of the 33 volumes of Transactions, and the now complete first volume of the Association JOURNAL, will reveal a vast amount of valuable labor, rich in fruitage, teeming with evidences of successful progress—an intellectual mine, in which is treasured up the matured experience, the scrutinizing thought, and earnest work in this important department.

Accepting the graphic, yet concise definition of Dr. Stanford E. Chaillé, of New Orleans, than which we can get no better if we would, and would not if we could: "*State medicine is the application by the State of medical knowledge to the common weal; and embraces every subject for the comprehension of which medical knowledge, and for the execution of which State authority, are indispensable,*" we shall not undertake to tax your patience with a repetition of the gradual, yet positive progress made therein. Suffice it to say, that while there have been no discoveries or advances of a meteoric brilliancy in the past twelve months, yet there has been progress. Some old things have been unlearned—which is sometimes no less important than that some new ones should have been learned.

While new discoveries and new developments in State medicine are of such importance and value, we can patiently wait several successive years in expectation of some one finding a Koh-i-noor, and profitably spend our time and skill in polishing up, and putting into practical use the rich discoveries of the past. The germ factor of cholera—distinctly stated more than thirty years ago by a Tennessee doctor,[1] as well as the germ theory of fevers by another Tennessee doctor,[2] a little later, has been burnished, polished and crystallized by later observers into cognate facts; and to these have been added by more recent investigators a like cause for tuberculosis, as well as other diseases. Granted that these ætiological studies are of greatest importance to the individual physician in his essays at individual prophylaxis, yet how much more important in State and national work!

The studies in regard to sewage and drainage; the purities and impurities of the air we breathe, the water we drink, and the food we eat; contagion, infection, hereditary, zymotic or other influences are being prosecuted day by day with a vigor and earnestness and an enthusiasm that will surely result in progress. It may be slow, but it will be none the less sure.

Is it necessary that I should inform you that Asiatic cholera again began its accustomed westward march from its lair in the Ganges, in the far distant East;

[1] W. D. Dorris, M.D., *Nashville Journal of Medicine and Surgery*, Vol I. No. 3, June, 1851, p. 154.

[2] Thompson on Fevers, 1859.

that it advanced its skirmish line even to Western Europe, with heavy battalions doing their murderous work 'neath the shadow of the Pyramids? But, "Thus far shalt thou go, and no farther," was the edict of State medicine in the good year 1883.

Yellow fever had even fastened its fangs on our Southern border, but by the strong arm of State medicine was it held at bay. Although small-pox has been claiming a victim here and there at long and distant intervals, in gratifying contrast to its former holocausts, yet even the few and infrequent sacrifices it has claimed were the result of neglect of the dictates and teachings of State medicine.

But enough of this. That familiarity with the scientific literature of the day which is incumbent on every member of this representative scientific organization, or a cursory walk through the Museum of Hygiene of the Navy Department here at hand and an examination of its records, will give you a better idea of the recent developments pertaining directly to State medicine, and will be decidedly more entertaining than any that I can lay before you. Therefore I may be pardoned if, following the line of some of my predecessors, I omit a citation of the "advances and discoveries of the past year" in this particular Section, more especially as there are one or two questions to which I desire to call especial attention. In doing so I must ask your indulgence if the views advanced, perchance, may seem to all or some of my audience to transcend the pale of orthodoxy. Yet I can sincerely claim honesty of purpose, and will yield to none in sincere and earnest desire to do good to my fellow-man, and will invoke a calm, dispassionate and impartial consideration of questions fraught with greatest importance to ourselves as physicians and as men, as well as to our fellow-men.

A cursory review of the published transactions of this Association, beginning with the Convention that gave it origin in 1846, down to the present day, will convince the most casual reader of the importance of the subject of medical education. Time and again does it show up in our printed minutes and published papers and essays. The effort all along the line has been to bring the aid of legislative enactments to bear upon it.

Am I heterodox when I say that it is not a subject for the State or national law-maker? Is State authority "*indispensable*" for its elevation? Is there need of legislative interference in behalf of medical education? The conditions under which men shall be allowed to practice medicine, the amount and kind of knowledge which they should be obliged to show, the way in which their possession of that knowledge should be tested, the preliminary education prior to, and the length of time they ought to study, the extent to which the details of that study should be regulated by compulsory rules or left to individual option — these are questions upon which there are wide differences of opinion in this country. In England during nearly the thirty years past, and on the continent of Europe for a longer period, entire governmental control obtains. Here, we have *free medicine*, as well as *free religion* and *freedom of speech*. A few States from time to time have essayed their hands, and with what result? Over fifty years ago, Daniel Drake, than whom this country never produced a more original mind, a closer reasoner, or one of deeper thought, in an "*Essay on Medical Education*," enunciated the following:

"More than half the States of the Union have laws to regulate the practice of medicine, but I am by no means convinced that they have ever done any real good to the profession or society. New York and Ohio have such laws; Virginia and Kentucky none. It remains to be shown whether the profession in the two former is more respectable than in the latter. I am disposed to believe not."

And to-day what shall we say? Are the people, or the doctors, in a better condition in Illinois than in Indiana? Take Michigan in the Northwest, and Kentucky in the Southwest, and compare their medical men with those in Massachusetts. At Ann Arbor we can see that regular medicine has been *brought down* to a level with one faction of the irregulars, while grand old Harvard holds her head aloft, and the glorious banner of regular medicine floats in its purity, its glory, and a most enviable renown. My own State of Tennessee has furnished in the past an honored and an honorable delegation to your councils. The late A. H. Buchanan, of Tennessee, was one of your first vice-presidents, and two of his colleagues had the honor to occupy subsequently the presidential chair with credit to themselves and this Association. The State from which they hailed has ever left medical matters solely to medical men.

Even in England there are to-day wide differences of opinion on this subject. They are not altogether satisfied that their plan of protection is the better one. Quite a respectable minority hold that they are not benefited by legal control, and that although freedom in medicine is subject to some abuses, it is perhaps the better plan. The medical literature of most benefit to the world is the growth of the present century, and notably the latter half of it. Are not American works being reproduced in the different tongues of Europe? Has it received no aid from this side the Atlantic?

"Flint on Practice," or "Gross or Hamilton on Surgery," as well as many other volumes of indigenous origin, are as favorably commented on by foreign writers and readers as the most noted productions of the old world.

The *London Medical Times and Gazette* of Nov. 12, 1881, in discussing in a remarkably fair, candid and impartial article the subject of "Medical Education and Registration in America," says that "American medical literature is very voluminous, characterized by great originality, inventive genius, industry and practicality." And again, can we not see that certain departments of our art have been created in this country, and others notably improved? Did it require legislative aid to develop the genius of a Sims or the inventive originality of a Sayre? The discoveries of Jenner and of Harvey occurred when medicine was as free in England as in the day of Morton, of Massachusetts, or Long, of Georgia, when anæsthesia just dawned upon suffering humanity, to say nothing of Dorris and Thompson, of

Tennessee, who were the discoverers of the germ-world, as much as was ever Columbus the discoverer of this continent.

Professor Huxley in an address "On the Intervention of the State in the affairs of the Medical Profession," delivered at the London Hospital Medical College, and published in the *British Medical Journal* of Oct. 13, 1883, is thus reviewed in a very able editorial in the *Chicago Medical Journal and Examiner*:

"Professor Huxley practically presents three questions: 1. Why should the State interfere with medicine and the medical Profession? 2. If there be ground for such intervention, what should be its extent? 3. If such intervention be right and proper, how can it best be carried into effect? The answers which he proposes to these several inquiries, seem to us eminently wise and judicious; and some of the commentaries they suggest, are interesting to us on this side the Atlantic.

With respect to the first question the speaker took the ground that it was not the duty of the State to take medical charge of the public, to protect it against incompetent persons in general, and in particular against quacks and impostors. He thought that it was more wholesome for the public to take charge of itself wherever it can do so in this as well as in other matters, and that on the whole there should be no interference with the liberty of each person to do that which he likes when he does not interfere with others. The actual impossibility [which all reasonable men must admit, and of which we, in the State of Illinois, have seen the most conspicuous and notorious examples] of absolutely prohibiting the practice of medicine by people not specially qualified for it, is freely admitted by Professor Huxley. The old lady who orders a cranberry poultice, the druggist who undertakes to relieve the pain of an aching tooth, or of any other afflicted organ of the body, will enjoy these peculiar pastimes in the face of all legal restrictions. The charlatan will do no less, and always more. "*Facilis decensus est Averni.*" He has smiled equally at the British, Gallic, and Teutonic barriers to bar his progress. Where there is a throne, there will always be a pretender. The shadow will always follow the substance. We shall always have him with us, whether the truth or its counterfeit prevail, is determined not by a national legislature, but by the extent of the diffusion of knowledge among the people whose feeblest index that legislature often is.

Professor Huxley, however, strikes the key-note of the whole question when he points to the death of the individual citizen as the important moment which the State should officially recognize. Here the volition of the individual ceases. In civil and criminal cases, the law should be able to have recourse to persons qualified to give expert evidence. Here lies the justification of the intervention of the State. It says to one class of men: 'Practice medicine, if you like, on any basis, on any theory, whether you are qualified or not qualified;' and to another class: 'Consult whom you choose, pay whom you will for attendance upon you in your illness; but before I can receive from you a certificate of death, before I can appoint any of you to any civil or military service, the standard of my qualification must be attained. The giver of the certificate, the incumbent of the office, must be those whom I can recognize as fit for such service.' In brief, the State intervenes only at those points where the State touches the individual. With the old woman's elder-flower tea, with the druggist's cough panacea, with the quack's startling announcement of the cure for consumption, the State has no more to do than with the numerous patent religious enterprises of the day in which we live"

This is rather a lengthy quotation. But as enunciated in a review of an address delivered on British soil, in the leading medical journal of the most protected of all protected States of America, we cannot refrain from using it. Yes, when you select your servant, your lawyer, or your preacher, he must rise to the standard of your requirements. So with the State. This right has been delegated to the States. Has the other? With the enlisted men and commissioned officers of the Army and Navy, the State has a distinct contract to provide them with medical attention, and has a right to require a certain standard in that particular as in the bread, the beans, and other supplies furnished them. Certain requirements are exacted in all civil and military appointments, and the appointing power has the right to fix the standard.

Nay, further, the State has the right, and exercises it, of prescribing the very garb of her appointees. And shall not you, or I, array ourselves in cotton or linen in winter, or in furs or heavy woolens in midsummer, so long as we remain private citizens, attending to our own business, and molesting no one? Granted, that in the one instance a life is sacrificed to pneumonia, or in the other to sun-stroke, has any legislator, State or national, other right than to pity the suicide for his folly? It might justify a writ of "*lunatico de inquirendo*," but alone, would not secure a verdict of lunacy.

The State may prevent fraud in the sale of unwholesome bread or unsound meats—for fraud is criminal; it may prohibit as a nuisance to one or more citizens, the keeping of such articles by one; but if he annoy not his neighbor, can the State prohibit his eating them himself? If he give it to his wife, his child, his servant, or the stranger within his gates, I grant you that he may be chargeable with murder. But eating it himself—is it an offence against the State? Would not public opinion even, readily agree, that the sooner the State is rid of such a one, the better!

I can readily and heartily agree with England's "uncrowned king of science," in protesting against State authority prescribing my pill, my potion, or my plaster,—I might be compelled to submit to infinitesimals.

To take another view of the subject. Can we better ourselves, our profession, or our fellow-man? Take the history of our own great country and compare it with other nations. Will we suffer thereby? In the March number of the *Sanitarian*, I find on pages facing each other, that the death-rate of Toledo, Ohio, was 15.3, while in London, it was 18.8 per

1,000. In 28 of the largest towns of England, with a population of 8,500,000, the death-rate for the third quarter of 1883, averaged 19.9 per 1,000, while in 28 of the largest towns of the United States, with a population of 7,395,000, the death-rate for four weeks ending January 26, 1884, was 19.36. In the *Sanitary Engineer* of March 6, 1884, page 337, the statement is made that the death-rate per 1,000 in 30 of the cities of the United States for the week ending February 23, was 20.3, while in 28 of the large towns of England for the week ending February 2, it was 20.5. We think we can stand the comparison.

Take the Medical and Surgical History of the War of the Rebellion, published by the late Surgeon-General of the United States Army. Will it not bear favorable comparison with any military medical and surgical records of a like period?

We have already cited the field of general medical literature; but we think it will bear repetition. Medical journalism, which in my humble opinion, has done, and will do, far more to elevate the standard of medicine in an educational, as well as a practical point of view, than all State and national legislation, had its very origin on our own goodly soil. Yes, by far, the brightest diadem the coronet of medicine ever bore is "native and to the manner born."

Take the discoveries in medicine, whether in anatomical or physiological facts, therapeutical or prophylactic edicts, the devices of surgery, the suggestions of practice, or the grand innovations of the specialists, from gynæcology to ophthalmology, and is not a fair and honorable proportion ours? These are questions for us to consider, and to consider well, before we throw down our grand and glorious birthright of free medicine—alike honorable and independent.

I can readily see how you can bring medicine down by legislation, but pardon the obscurity of my vision when I say that I can see no way of raising it up by the same means. I can see how legislation can force me to stand on the same plane with those "who claim a special designation and trade upon the same." I can see how honorable, regular medicine can be pulled down to the level of the irregular, the nostrum-vender, and the charlatan. If medicine is to rise, there is ample power within her own domain. If medicine is to be elevated, to medical men alone must be entrusted the lever. If medicine is to be regulated, in this Association can we find the power which but needs to be put into action. In a series of resolutions adopted by this Association in 1869 we find the following preamble:

"WHEREAS, The history of medical legislation in the various States of this Union clearly shows that no reliance can be placed on either the uniformity or the permanency of any laws relating to the practice of medicine—"

In 1872, Dr. David W. Yandell, of Kentucky, in his address as President of the Association, stated that:

"The profession does not appear to my mind 'corrupt and degenerate.' I do not believe 'it is going from bad to worse,' and that the people will have to rise in their might and stay its downward progress. I cannot see the thing in this light at all, and so am not ready to appeal to Federal Legislation to correct our evils, and certainly should not go to Congress to establish National Medical Schools."

In 1874, at the twenty-fifth meeting of the Association, Dr. J. M. Toner, of this city, as your presiding officer, said:

"The hope entertained by some physicians of excluding irregular and incompetent practitioners from the profession by legislative enactment and penalties is, I apprehend, in our country, not to be realized."

Consulting the published transactions of this Association from 1846 until to-day, will evince to you that this subject has been carefully and well considered; effort after effort has been made, and yet National legislation has not heen accomplished. The people through their representatives have said that they did not want it. Shall we not abide by their decision, that State authority is not needed, and thus relieve State medicine from a futile and unnecessary struggle, and free its arms the more successfully to cope and grapple with the many foes to be found in its own proper field?

The next subject to which I wish to call your attention is a more perfect organization for State medicine. And in doing so I do not propose to become the partisan of either faction involved in an unfortunate wrangle in regard to National Sanitary matters. I most cordially recognize and acknowledge the excellent results as accomplished by the National Board of Health, both in its labors of investigation and as the custodian of the appropriation made by Congress for the prevention of epidemic diseases up to July, 1883. The members of that Board as Scientists and as Sanitarians are deserving of the lasting gratitude of the American people. As cheerfully do I accord the same meed of praise to the Marine Hospital Service from July, 1883, to the present day. But I must deplore and sincerely regret the contest that has arisen between them. Having carefully examined into this imbroglio; having impartially considered both sides of the question, and having patiently and carefully read the statements made by the opposing parties, I can only say unfortunate for the National Board of Health, unfortunate for the Marine Hospital Department, and most unfortunate for National Sanitation.

But let us try and correct the error. The National Board of Health is the result of earnest and faithful work on the part of this Association, and its younger ally, the American Public Health Association. It was authorized and established by Congress in answer to repeated applications of the two organizations, so terribly emphasized by the yellow fever epidemic of 1878.

With a morbid dread of an autocracy, with an apprehension of placing too much power in the hands of one man, I am of the opinion that error was committed in its inception. It was made too unwieldy. Incompatible elements, apparently, have entered into its composition, and in the struggle that has ensued we have seen that these representative men have "degenerated into detraction, ridicule and unseemly

personalities which can only result in great injury to the public health service." By its representative organization, by selecting its members partly from four departments of public service, and with seven civilians from as many different States, have we not secured a "divided responsibility" ending "in inefficiency and failure?" Can it be possible that with its brief but brilliant record, the auspicious future presaging its advent, it is so soon a stranded wreck?

Would it not have been better to have modelled it in exact comformity with the Departments of our National Government? Surely the Department of Justice is of no greater importance, is of no more utility or benefit than a Department of Health, if organized and sustained in the same manner and on the same basis. I think it would have been far better if we had demanded, and I do not believe it is yet too late, that a Department of Health be created by Congress, with a Chief, the Secretary of Health, or Medical Director of the United States, a member of the President's Cabinet, nominated by him and confirmed by the Senate as other Cabinet officers, and with equal rank and compensation as other members of the Cabinet, said Chief to organize his Department by the appointment of the necessary assistants, sanitarians, scientists, chemists, physicians, surgeons, clerks and other subordinates, just as is organized the Department of Justice and other Departments. Said Chief to advise with the President when necessary, and to report the working of his Department to Congress as required.

To this Department would be referred all matters of International Sanitation, such as quarantine of seaports; the regulation of inter-state quarantine, and the aid and assistance to be granted State and local sanitary organizations, when occasion required, under certain restrictions. But I have not time or space to go into specific details, and they will readily suggest themselves.

With the advice of this Department, Congress could intelligently legislate as regards all matters of National sanitation, including marine and inland quarantine. With the advice of such a Department Congress could intelligently and successfully aid State and local health boards and officers in their efforts at prevention of diseases requiring more ample means of suppression than within their power.

The objection, and I believe the principal one that can be brought against the National Board of Health, was that it was too unwieldy. That there was an objection, and a tangible one, is evidenced by the fact of its failure to secure that confidence necessary for its proper maintenance, or to hold the position originally assigned it. I have no hesitation in asserting that a similar result would have inevitably ensued if the Department of the Navy, or the Army, the Department of Justice, or the Interior, had been organized on a similar basis—no matter how able, how eminent, or how efficient the members of the Board in charge.

As before stated, a Department of Health is of fully as much importance as that of justice, war, or the navy. Recognition of this fact is but an evidence of progress in civilization. "Public health is public wealth" is an established axiom in all civilized and intelligent communities at this day. As enunciated by England's great primate, "it should be the statesman's greatest care."

Fully recognizing its needs, as our entire people now do, the question is, how best to meet the issue? Our national legislators are elected by the people, and from the people. They are ever ready to pass any law that will benefit those whom they represent, and while occasionally they may have one in their midst who has had special training in medical or sanitary science, or one who like our distinguished Senator from Tennessee—the Hon. Isham G. Harris—under the pressure of impending circumstances, will turn the entire weight of his intellect, and bring his every nerve and fibre to bear upon questions of National sanitation, yet the outcome so far has been indifferent good.

The bill establishing a National Board of Health, together with the one for the prevention of epidemic diseases has found serious objections in more quarters than one. Hon. Casey Young, of Tennessee, has recently, in a bill introduced, made certain suggestions in regard to this question. So also may be said of Hon. Mr. Pettibone. These suggestions, I apprehend, will not fully cover the ground. They do not sufficiently comprehend the magnitude of the questions at issue, its many intricacies and the numerous conflicting interests to be reconciled.

The army and the navy have their own particular needs. While their medical staff are composed of able, talented, scientific, thoroughly educated and energetic men, and men who have closely studied the questions of sanitation as regards their particular branch of the service, yet this is entirely different in many particulars from National sanitary work. That the Marine Hospital Service—a sub-department of a department—has quite enough to do in its own particular line, is well demonstrated by the fact that only during the winter just past, individuals under its own care and for whom it was organized, have become charges upon the counties of my own State, and thereby have disseminated the seeds of smallpox in more than one locality on the banks of the Tennessee River.

I do not wish to be understood as recommending an "autocratic power to be conferred on any one man, with sole discretion in regard to quarantine," marine or inland, or other matters belonging to State Medicine. By no means. I, as much as any one, believe in certain rights belonging to the people, certain rights by them delegated to the State, and certain rights of the people and by the States delegated to the National Government. There is no autocracy in the Treasury. Yet, without this Department as now organized, how could our National lawmakers as successfully grapple with the intricate and and delicate problems of finance? Is the "dollar of our daddies" of more importance than the lives of our fathers, our mothers, our wives, our children, or ourselves? Are monetary questions more difficult of solution than sanitary, that we grant to Congress an able adviser, with able assistants, educated and trained as each separate need demands, for carrying out the

regulations and edicts of that Congress? Are they more important? It is by no means an autocracy that is needed. Let Congress, as the voice of the people, say what steps shall be taken to meet the invasion of foreign or domestic disease, and that it may act advisedly, and that it may have the means of carrying out its dictates — let it have a Department for this special purpose. Recruit this Department from the army, the navy, the Marine Hospital service, or from civil life, from its head to its most humble subordinate; but these recruits, when in its service owe allegiance to it alone. And when necessity occurs, or emergency arises, give such aid as may be needed from other departments of the government, as such need or emergency may demand.

Is there danger that an inefficient or unsuitable man may be placed at its head? No more danger than that our Chief Executive will appoint, and the Senate will confirm an inefficient or unsuitable man as Secretary of State or of the Treasury. He is responsible to the people. His appointee is responsible to him, and through him to the people for the faithful execution of such laws and regulations as the people, through their representatives in Congress assembled, may decree to preserve them from foreign pestilence or domestic disease.

Dr. J. F. Hibberd, of Indiana, as Chairman of the Section in State Medicine, in his annual address in New York, 1880, very justly compliments the National Board of Health in "that some degree of harmony of action was established among the various State and local Boards of Health that were charged with the immediate execution of sanitary regulations." And further says, that "it should be clearly recognized that the National Board does not supersede local sanitary organizations." Recognizing as I do certain rights and duties belonging and pertaining to towns, cities, States, and the inhabitants thereof, I can foresee and confidently expect a far greater degree of harmony as the outcome of a properly organized department, with a responsible head, than with a cumbrous Board. To use the words of one of the most eminent members of the National Board, Dr. Stephen Smith: "Divided responsibility must end in inefficiency and failure." As in many of our States, we have quite a diversity of legal, social, commercial and other regulations as pertaining to the varied questions of political economy in the different States, all working smoothly together as a whole without conflict because harmonized and properly restrained as regards each other by the various departments of the National Government; so, also, there is just as positive a certainty of harmonizing National, State and local questions of health by a similar department.

Dr. C. C. Cox, of this city, in 1871, advocated views somewhat similar to the suggestions I have the honor to submit. And in 1872 a bill was introduced into the U. S. Senate providing for the establishment of a national sanitary bureau, with a chief executive officer; but as advocated by Dr. Cox, subordinate to the Department of the Interior. The duties of the chief, which are specified at length in the bill, were to collect information on sanitary matters and to report on the same from time to time. He having the appointing power to select such additional officers required, as chief clerk, chemists, experts, etc. Dr. Jno. S. Billings in his report on the National Board of Health and Quarantine to this Association in 1880, says that "there was a general feeling among sanitarians that this bill was not opportune, that the circumstances were such that it would lead to purely political appointments, and that the result would be upon the whole prejudicial to the cause of public hygiene. It therefore received little or no cordial support. The American Public Health Association did not recommend its passage, and it was practically pigeon-holed in the Congressional Committee to which it was referred."

A similar idea was suggested in the American Public Health Association in 1873, by a resolution recommending a National Health Department similar to that of Agriculture or the Bureau of Education. The resolution does not say to what department it should be subordinate.

My objection to Dr. Cox's suggestion is, that if either should be subordinate, the Department of the Interior might be made as an annex to the Department of Health. For of the two, I cannot but think that our National Health, and the questions pertaining thereto, are paramount. As for the political bias that seemed to be so much dreaded, it has no fears for me. If a department is created as suggested, we can, I think, very safely trust the chief magistrate elected by the American people, no matter from what particular political field he may come, to select a head for that department, to manage it according to the regulations of a Congress elected by the same people.

ON THE IMMEDIATE AND REMOTE EFFECTS OF EMMET'S OPERATION.

BY JOSEPH TABER JOHNSON, A.M., M.D., WASHINGTON, D. C.

(Presented to the Section on Obstetrics and Gynæcology, American Medical Association, May, 1884.)

MR. CHAIRMAN AND GENTLEMEN:

The title of this paper indicates the desire of its writer to draw attention to some of the immediate and remote effects of trachelorrhaphy. There is so little to be found in our gynæcological literature upon these subjects, it occurred to me that a collection of the combined experiences of a number of our prominent gynæcologists might possess much interest as well as value, and aid somewhat in the settlement of some of the points in regard to the effects of this operation, which have been raised abroad and at home within the past few years.

Perhaps I may be pardoned for a digression, a moment, in reference to the name of this operation. Emmet, its justly celebrated author, described it as an operation for the restoration of a lacerated cervix

uteri, in his first paper, read before the Medical Society of the County of New York, in February, 1869. In his second paper, read before the same Society in September, 1874, he retains the same name.

Dr. E. C. Dudley, of Chicago, was the first to give it the name of trachelorrhaphy (New York *Medical Journal*, January, 1878).

Dr. Paul F. Mundè (*American Journal Obstetrics*, January, 1879), in his excellent article on the indications for the operation, in his desire to be more exact and explicit, named it hystero-trachelorrhaphy. Dr. Emmet remarks (see second edition of his work, p. 450): "It would be but human nature for the uninitiated to dread the severity of an operation so termed, and I should prefer to use the English expression." The editor of the *Medical News* calls it tracheloplasty in a recent editorial.

I wish to propose that we should, in simple justice to its great originator, speak and write of this operation—which Thomas, Marion Sims, Fordyce Barker, Goodell, Howard, Jenks and others have spoken of as one of the most important contributions which have been made to gynæcology (within a quarter of a century, Thomas)—*as Emmet's operation.* There are many examples familiar to us all where less valuable contributions to medicine or surgery have been subsequently known by the distinguished name first to describe, propose, or perform it. Thus we have Graves' disease, Basedow's disease, Bright's disease; we also have Syme's operation, Chopart's operation, Sympson's and Sims' operation, on the cervix; and more recently Bigelow's operation, Battey's operation, and now Tait's operation. And why not, when speaking of an operation which is performed more frequently, perhaps, than all these others combined, and which has been productive of so much good—why not call this surgical procedure after the name of its eminent author, and say Emmet's operation? Jenks writes me from Chicago that he intends to drop trachelorrhaphy in the future, and in writing or speaking say Emmet's operation.

The importance of the operation—Emmet's mode of performing it—and the various modifications of his originally-described plan of procedure, have all been voluminously written up. The indications for the operation, the preparatory and after-treatment, have been discussed in the more recent text-books, and in nearly every medical journal and society in the country, until all questions in regard to it seem in a fair way to be definitely settled.

Upon its more remote effects, however, there has been very little evidence recorded. The inquiry has arisen in many minds, what is or will be the condition of the uterus, say one, five or ten years after a laceration has been successfully restored by Emmet's plan? Only here and there has any record been made of facts which would enable us to give an intelligent answer to this question. Our efforts to defend the operation against the attacks of those who would charge evil against it, upon what is called negative evidence, have been somewhat crippled by our inability to point to recorded facts showing the after-effects of trachelorrhaphy, whether for good or evil.

Thus one writer searched the records in the great library of the Surgeon-General's office and immediately writes to the *American Journal of Obstetrics* (January, 1883) that "he has endeavored to collect *all* the cases where, after the operation for laceration of the cervix conception took place and the condition of the parts after delivery were noted." —"Fancy my astonishment," he says, "to find throughout all the literature of the Surgeon-General's office touching this particular point, *eleven cases only recorded.*"

He then quotes these eleven cases from the various reports, to which he adds three of his own, making fourteen in all, and refers to the fact that Goodell had only reported four cases out of 113 operations, where he had known pregnancy to follow the operation, and then jumps to the astonishing conclusion, which he says "is deducible from the statistics furnished, that repair of laceration of the cervix uteri is usually followed by sterility." The inference being that it was caused by the operation. He also states from similar evidence as his second conclusion also "deducible from the statistics furnished," that the character of the labor is unusually severe and protracted, and that in a large percentage, laceration occurs a second time.

Our English cousins, Tilt and Savage more especially, have criticised Emmet's operation with much sharpness, displaying in their discussion of the subject as much ignorance of our literature as of the proper limitations of the operation, as pointed out in an able paper of Dr. Charles Carrol Lee, of New York. (See New York *Medical Journal*, Sept., 1881.)

As Dr. Howard,[1] of Baltimore, and Jenks,[2] of Chicago have ably answered the criticisms and unfair strictures of these gentlemen, I will not occupy your time with that branch of the subject, but keep to the subject of its immediate and remote effects.

If this surgical procedure, which has received the endorsement of all good gynæcologists the world over, who have properly tested its merits, is followed by sterility as a necessary consequence, or, if it is the cause of severe and protracted labors as claimed, and if re-laceration occurs from any reason fairly traceable to the operation itself, I thought such facts should be placed on record, as a warning to this and future generations, together with additional facts relating to the occurrence of primary and secondary hæmorrhage, cellulitis, peritonitis or death, and the proportion of cases stated in which these accidents occur. Many have regarded this as one of the safest and most unusually successful operations in surgery.

In order to learn these facts I addressed a letter to a number of gynæcologists, asking for information upon these topics, with the statement that I desired to place their replies upon record for the purpose of supplying the missing link, so to speak, in the history of this subject. In my letters of inquiry I requested information upon the following points:

1. Number of operations performed.
2. Number of times pregnancy has followed the operation.

[1] Report of the Sections of Obstetrics and Gynæcology to the Medical and Chirurgical Faculty of the State of Maryland, pp. 1; 10, 1883.

[2] Contributions to Surgical Gynæcology, by E. W. Jenks in 1882. Transactions Illinois State Medical Society, vol. xxxii.

3. Character of the labor. Whether unusually severe, protracted or natural.

4. In what percentage of cases did re-laceration occur. Whether in the same place or on the opposite side.

5. Have any of your operations been followed by secondary hæmorrhage, pelvic cellulitis or death?

I have made a table of the replies of twenty-six gynæcologists which I herewith present to the Section. It is impossible to do justice to my correspondents by so condensing their replies as to simply fill up the blank spaces in a table covering the points upon which I made inquiry.

In some instances a letter of six or eight pages does not give the information desired in such form as to be fairly expressed by figures, and I shall be compelled therefore in justice to them and the subject as well as to you, to read extracts from the irreplies relating to certain facts or figures, as an appendix to my paper.

Thus, for example, Dr. Emmet states that he has known pregnancy to occur often, but as he does not practice obstetrics, he is unable to state the character of the labors following. This statement is the rule rather than the exception in the answers to my letters of inquiry. The necessity for more full extracts than could be expressed in a table becomes obvious.

NAME OF OPERATOR.	NO. OPERATIONS.	NO. OF PREGNANCIES.	CHARACTER OF LABOR.	CASES OF HÆMORRHAGE.	OF CELLULITIS.	PERITONITIS	DEATH.	RELACERATION.
Emmet	About 600	Often.	.....	3	Several.	..	0	3
Thomas	In last three years in his Sanitarium alone 102	Often.	See Letter.	..	..	..	0	..
Goodell	211	A few.	Normal.	3	Very rare.	Very rare.	3	3
Berlin	50	Has never happened to attend a patient who had been operated upon.	.....	..	..	..	0	..
Scott	125	Frequently.	Not Severe.	A few.	A few.	0	0	Some.
Chadwick	12	1	.....	0	0	0	0	..
Byford	Over 50	Only *knows* 3	Does not practice obstetrics Thinks the operation cures sterility.	..	..	..	..	..
Jackson	118	9	4 natural. Don't know about others.	4	3	0	0	Don't know of any.
Smith	See letter.	4	.....	..	..	..	..	..
Mann	Over 50	4	O. K.	0	3	0	0	0
Baker	250	Several.	.....	0	0	0	0	5
Reamy	Above 200	Several.	2 tedious.	0	5	1	0	0
Mundè	137	13	Nothing unusual.	2	..	2	2	About 20 per cent.
Jenks	150	.....	Knows of no difference.	1	1	0	0	0
Lusk	300	Common occurrence.	Not severe.	0	Some slight cases.	..	1	Common.
Wilson	100	Knows of 4	2 were natural.	0	0	0	0	1
Skene	About 300	Knows of a considerable number.	Several natural; rest unknown.	Few slight.	0	0	0	Don't know of any.
Lee	Over 100	12	1 protracted; 11 natural.	2	Several.	..	1 pp.	1
Sutton	About 60	Some.	.....	0	0	0	0	0
Van de Warker	Over 100	20 per cent.	.....	0	0	0	0	One-half.
Johnson	16	3	Not yet delivered.	1	1	1	0	
Broomall	63	1	Tedious.	0	0	0	0	1 Slight on one side; operated on both sides.
Richardson	17	3	Normal.	0	0	0	0	2
Engleman	See letter.	.....	.....	0	0	0	0	..
Howard	A great many.	Several.	Can't say.	0	0	0	0	..
Total	3,111	77						

Most gynæcologists are not practicing obstetrics, and consequently do not know of their own knowledge the ultimate effects of their work. As they do not follow up their cases, in most instances, they cannot say how often women upon whom they have operated have become pregnant, or state the character of their labors.

Emmet and Goodell both express the opinion that the preventive measures adopted to prevent conception are largely the cause of the apparent sterility following trachelorrhaphy, and Emmet states that after much careful thought he does not believe that the operation has anything to do with producing sterility when it is properly performed, and yet if we relied upon cool statistics to prove this, we should utterly fail, as both those distinguished gentlemen after about eight hundred operations report less than a dozen cases of pregnancy following of their own knowledge. Those who take the opposite side of the question will also fail to establish their points by simple reference to statistical tables; while unexplained figures would seem to aid them, the subjoined letters clearly show the correctness of my position. We must of necessity then look elsewhere than in statistical tables for the true explanation of the implied sterility.

It is apparent that a majority of the cases have been operated on in charity hospitals and in consultation practice, and when patients are discharged cured, they have passed entirely from observation, and their subsequent histories are unknown. It is not logical reasoning therefore to argue that *because* they are not known to have borne children, they were *therefore* sterile, and made so by the operation. In the replies to my inquiries this point, I think, is made emphatic. It also appears that as many women are past 40 when they apply for treatment, they have already reached an age when they are not likely to become pregnant, and furthermore that as they have gone through so much suffering, the result of childbirth, before obtaining relief, in many instances they are known to have used precautions against future conceptions. It frequently happens also that the operation is performed on widows. I have operated upon several of this class.

So many women have borne children who have sustained the injury under discussion, that it cannot be honestly claimed that they were sterile before the operation. Those who claim that the operation causes sterility should not operate upon any woman wishing to have more children, unless they hold the erroneous opinion of a previously induced barrenness, and believe, therefore, that trachelorrhaphy could not add to the existing trouble.

It is thus manifestly incorrect as well as unfair to judge the question of apparent sterility by purely statistical evidence. One cannot properly say that all women not known to have conceived after this operation were made sterile by the operation, and argue from such premises against the propriety of its future performance. I have presented evidence from hitherto unpublished sources of more than 100 cases of pregnancy following Emmet's operation, and that the labors have not been unnatural, and re-laceration was a surprisingly rare occurrence. If re-laceration *were* to occur upon the opposite or same side, I fail to see why, if the indications for the operation were prominent and unmistakable, it should not have been performed and the patient relieved from present suffering and future danger. If it should tear out, it could be easily sewed up again.

If a patient requires perineorrhaphy for her safety or comfort, no gynæcologist, it occurs to me, would refuse to operate for fear of a possible re-laceration of the perinæum in some future labor. The surgeon's duty is to relieve present ills, and not stay his hand for fear of those he knows not of.

It should be taken into account also that Emmet's operation, as all other operations in surgery, may be improperly and unskilfully done. It is undoubtedly true, as stated by me in a recent paper,[1] "that errors in judgment *would* occur, and disrepute be brought upon a very valuable operation by its unwise, unskilful and too frequent repetition." There is no doubt but this operation is resorted to more frequently than is required, but this occurs in the history of all new operations. Sufficient opposition is thereby elicited to finally confine it within its "proper limitations." Emmet has stated that he now performs it only once where he formerly did it ten times. He finds that by curing an existing endometritis and cellulitis the tissues which had rolled out and produced an ectropion, giving the appearance of a considerable laceration, are curable by appropriate treatment and an operation becomes unnecessary.

There are conditions, however, of catarrh of the cervical mucous membrane, which Van de Warker claims are cured better by the operation than by any other means. If any catarrhal endocervicitis remains afterwards, he claims that he has rendered it more amenable to treatment. I learned from him that it was unnecessary to wait for the cure of this condition by a long, frequently unsuccessful and always troublesome and expensive course of treatment, but that it was better to proceed at once, where an operation is required. In stating this point in a former paper, it appeared as if I had "always" held this view, and that my friend had recently confirmed it in an article in the *American Journal of Obstetrics*, July, 1883. I desire to state that I was following *his* lead, and that the priority in this new departure belongs entirely to him.

When a surgeon cuts away too much of the tissues of the cervix, thereby destroying its future dilatability, to a certain extent, or leaves too little undenuded tissue for the new cervical canal, in a bi-lateral laceration, thus producing a veritable stenosis, or sews up the entire cervix, leaving no canal whatever —as I am informed has occurred—the blame should be placed where it belongs.

The fault lies not in the operation, but in the hand which performs it.

Howard says, in the article already referred to, and his language I now adopt, "that favorable results have not always been attained by trachelorrhaphy, is nothing more than what we occasionally witness in respect to other operations, alike in general and special surgery, although universally approved and practiced. Alternately favorable and unfavorable results from trachelorrhaphy arise from several causes.

1st. The conditions and indications for the operation have not been clearly defined, or else disregarded.

2nd. Proper preparatory treatment has been overlooked or inefficiently conducted.

3rd. The operation has been, from inexperience, or want of dexterity, clumsily done. Some persons can never perform a delicate or serious operation, and whenever they attempt it, they remind one of a bear-dance or elephant-waltz in a travelling menagerie. This is especially true of plastic operations."

I think the feeling has prevailed among the people, and to some extent among physicians, that the cervix is so liable to re-laceration in subsequent labors that the operation should therefore not be performed until after the menopause. In reference to this subject, I would venture to express the belief that the cervix is just as liable to laceration after the operation as before, and no more. The frequency of cervical laceration has been placed as high as one in every six women confined, by so excellent an observer as Goodell. Emmet places the percentage at 33;

[1] On the Importance of Trachelorrhaphy, January, 1884.

Mundè, 22; Pallen, 45. The line of union is so perfect in successful cases, that Hunter states (*American Journ. Obstet.*, Jan., 1883, p. 69) that a few months after restoring a lacerated cervix, he could not determine by the touch, where the injury had been. The tissues seemed to be no harder than the surrounding tissue. I can confirm this statement after many examinations. Dr. Hunter, in same journal, p. 68, states that he delivered a woman in June last, on whom he had performed an operation for a severe laceration of the cervix, and also for a complete laceration of the perinæum. The child was born at full term and weighed over seven pounds. Neither the cervix nor the perinæum gave way. This was only one of *several* which he had seen in which no injury was done the repaired laceration at subsequent labors.

In the same discussion, Dr. Skene stated "that he had seen *several* cases of successful delivery without further injury after operations for laceration of the cervix."

Dr. A. S. Clarke in same discussion remarked that about five years ago, he assisted Dr. Skene in restoring a cervix badly lacerated bilaterally, and he was sent for in June last, to deliver the same woman; but when he arrived the child was born, labor having been very rapid. The child weighed ten pounds. There was no laceration.

The cause of the re-laceration when it does occur is supposed by some to reside in the hardened cicatricial tissue said to remain after the operation. But Hunter has shown us that none is found a few months afterwards, and even if there were, it is difficult to understand, from the location it must occupy, how it could interfere with dilatation.

If it were circular, it would do so, whenever present, but being lengthwise, cannot interfere much, if any, and Clarke says, in reference to the rapid birth of this ten-pound child, that "if any cicatricial tissue from the old operation had been present, he thought it certainly would have given way." Dr. Hanks stated that he had delivered *several* women whose lacerated cervixes he had sewed up, without any injury resulting. As bearing upon the supposed presence and influence of cicatricial tissue, in causing protracted labor, and re-laceratons, I ask attention to the following remarks of Dr. C. C. Lee (same discussion): "Two years ago, Dr. Lee performed an operation in the Woman's Hospital on a patient who had a very extensive double laceration of the cervix, so that very little of the true cervical tissue remained after its repair. An excellent result was obtained. He was particularly interested in the case, as the laceration had been so extensive, and she was a young woman, and expected to bear more children." She was subsequently attended in a confinement by his associate, Dr. Swasey, who reported "that no laceration whatever had occurred." "Dr. Lee examined her very carefully afterward himself, drawing down the cervix with the tenaculum, but he was unable to find any laceration. Dr. M. A. Pallen stated that "with regard to subsequent delivery, without injury, after operation on the cervix, he had met with *several* such cases—at least half a dozen in his own experience. Some patients he attended in two subsequent labors, and no laceration took place. Last year he closed a double laceration of the cervix, and in July last attended the patient in labor. No laceration occurred either of the cervix or of the perinæum, both of which he had operated on for laceration.

In the *New York Medical Journal*, Vol. xxxviii, 1883, p. 48, a discussion in the Philadelphia Obstetrical Society is recorded, in which twenty cases of pregnancy following operations by Drs. Baer, Gittings, Goodell, Montgomery and others. In nearly all the cases a normal labor occurred, unaccompanied by re-laceration.

There are some facts to prove that this is not so universally safe an operation as many have supposed it to be. While my question in regard to the occurrence of pelvic cellulitis and peritonitis was answered by eight correspondents in the negative, four report eight cases, and six say they have had "several" or "a few" cases each, and eight do not reply to the question at all.

Drs. Emmet, Scott of San Francisco, and others, say that where it has occurred, it has generally been traceable to some error in the operation, such, for example, as failure to entirely cure an existing chronic cellulitis, so that when the uterus was drawn down to the vulva, the over-stretched tissue became irritated and an acute attack resulted. Seventeen cases of hæmorrhage are reported—one fatal case and several not yielding to ordinary means, including styptics and the tampon. Sutures had to be introduced beneath and around the bleeding vessels before the hæmorrhage could be controlled.

Seven deaths resulting immediately from the operation are reported, and I have heard incidentally of three others not included in this table, but within the knowledge of some of the writers—making ten in three thousand cases; that is, three and one-third to a thousand, or about one-third of one per cent. if we include the ten cases—three deaths occurred in the practice of one man, and he so good an operator as Goodell, as set forth in the table already reported.

I think I have proved, from the best of testimony, that Emmet's operation does not cause sterility when properly performed, that re-laceration is no more prone to occur after the operation than before, and that severe or protracted labors do not follow as a consequence; that it is not without its dangers, ten deaths occurring in a little over 3,000 cases, besides a number of instances of hæmmorrhage and cellulitis not fatal. I believe the cervix is operated on in many cases which might have been cured by proper treatment; and I believe also that the operation, when properly performed and clearly indicated, is one of the greatest improvements of the age.

89 MADISON AVENUE,
NEW YORK, March 8, 1884.

DR. J. T. JOHNSON, WASHINGTON, D. C.:

Dear Doctor:—I wish I knew how many times I have operated for closing a lacerated cervix—certainly not less than 500 or 600 times in the past

twenty-two years. I have never regretted doing the operation, and have often wished that I had performed it. I believe that I have kept many a woman out of the lunatic asylum, and saved many a life from phthisis. I have never lost a patient from or after the operation. Quite a number have had more or less cellulitis after the operation, which could generally be traced to some imprudence or to error in judgment on my part in operating before the case was properly prepared. I have known of three cases where serious hæmorrhage has occurred after the operation—one in my private hospital, where oozing went on for several hours after the operation, and was stopped by a deeper stitch, a recent case in my service at the Woman's Hospital, coming on about two weeks after the operation. It was a very serious case, and was stopped with difficulty by the use of the tampon. The third case was in Dr. Pallen's practice several years ago, when the bleeding had been going on for some two days after the operation, and the woman was very nearly losing her life. I was called in, and stopped the bleeding by untwisting the sutures and introducing another lower down. I do not believe the operation has anything to do with causing sterility. When a woman has remained sterile afterward, it has been due to the existing cellulitis, or to the damage done by the previous inflammation including the tubes. I take great care in preparing my cases for the operation, and pregnancy has occurred so often after I have operated, that I am fully convinced my view is correct. I do not recollect of more than three or four cases having returned with a second laceration, and have examined a large number of old patients where a fresh laceration did not occur, and some have borne a number of children after the operation. I only wish I had the data to give you, but I have been too busy a man to keep them, and can only give my impressions.

In writing on this subject you may do much to correct the general abuse into which the practice of the operation has fallen. Everybody is performing it, and very few are doing it with any purpose except to close a fissure. The operation should never be done without there are marked symptoms calling for it, and the case should be properly prepared before it is done; for until the cellulitis has been removed, which causes the parts to roll out, it is impossible to decide, except in a very few cases, if the operation is needed or not. A large fissure will sometimes disappear as the parts roll in again, as the cellulitis clears up. Where there are marked reflex symptoms, very few clear out properly the dense tissue from the angles, and I operate on a large number of cases with marked benefit when the operation has already been done by some one else and the patient had been disappointed in the result. I wish you all success.

Yours very truly,

T. A. Emmet.

294 Fifth Avenue, March 13.

My Dear Doctor:—I regard trachelorrhaphy as one of the most important advances that have been made in gynæcology within a quarter of a century. After the closure of a lacerated cervix I have often found pregnancy to result where sterility existed before. On the other hand sterility is produced by it in some cases where the cervix has been sewn so tightly that it is impossible to pass even a uterine probe.

I am sorry that I have no statistics to give you of the operations I have performed either in the Woman's Hospital or in private practice. You can form some idea of the frequency with which I perform trachelorrhaphy when I tell you that in my sanitarium which was opened three years ago, I have done the operation one hundred and two (102) times. As to my other cases I have kept no record. In a word I regard trachelorrhaphy as an operation of extreme value, but an operation that is often performed where there is no real necessity for it.

I am very glad you have taken up such an important topic, and regret that I cannot give you more information. Yours sincerely,

T. G. Thomas.

47 E. Thirty-Fourth Street,
New York City.

Dear Doctor:—I have performed trachelorrhaphy between 200 and 300 times. I have no statistics showing the frequency with which the operation has been followed by pregnancy, but know that it is of common occurrence. Labor in such cases has not proved unusually severe. I should say that re-laceration was a pretty common event, though of course not a necessary consequence of the operation.

I have had one case of secondary hæmorrhage in the hospital, but never in private practice. I have seen slight attacks of cellulitis occasionally follow the operation. I have had one fatal case. This occurred at the hospital. I had left my operating bag at home, and tried to shift with instruments from the hospital drawer. I have no doubt that the knife used had not been properly cleaned. At any rate lymphangitis started from the wound and death followed. Very truly yours,

W. T. Lusk.

280 W. Fourth Street,
Cincinnati, March 11, 1884.

My Dear Doctor:—I have operated about 200 times. So far as I have been able to discover, sterility has not resulted from the operation. In a good per cent. of the cases sterility was cured, not in all. I have attended several of my cases in subsequent labors.

In two cases dilatation was tedious but ultimately complete. In the others dilatation was natural. In no case did re-laceration occur.

So far as I have been able to learn, other physicians who have attended during labor, cases upon whom I had made the operation, have had similar experiences.

The operation can be, and doubtless has been, greatly abused. But confined to appropriate cases and carefully done, it is in my judgment one of inestimable value.

In 1876 I adopted the method of allowing free bleeding from the cervical vessels during the cutting stages of the operation, which not only greatly facili-

tates the more perfect co-aptation of the edges, but renders the introduction of the needle easy.

Of still greater value is this bleeding in reducing the congested and hypertrophied cervix.

Very truly yours,

THAD. A. REAMY.

CHICAGO, March 6, 1884.

Dear Doctor :—Your letter in reference to trachelorrhaphy is received. I have probably operated over fifty times. The immediate results have been fairly good ; but I have not been able to follow up my cases so as to collect facts relevant to the points which you are investigating. I do not practice obstetrics. This may be one reason why I have not been able to get information such as you desire. I have in mind, though, three cases of recent date which have been succeeded by pregnancy. I have gotten the impression, without any definite data upon the subject, that the operation, when required, restores fertility instead of impairing it.

I am very respectfully yours,

W. H. BYFORD.

PHILADELPHIA, March 13, 1884.

Dear Dr. Johnson :—I have operated on two hundred and eleven (211) cases of laceration of the cervix uteri.

As I am not engaged in general practice, and do not attend obstetrical cases except as a consultant, I cannot keep track of cases in which pregnancy occurred after the operation. My opinion is that pregnancy would have happened more frequently in some of my cases, were it not that, for fear of a second laceration, preventive measures were probably resorted to.

No unusual difficulty occurred in the labor of those who became pregnant. In three the cervix was again torn, but in only one was the rent bad enough to need a second operation. The tear originally was a a bilateral one, but this time the left side alone gave way.

Three of my cases were followed by secondary hæmorrhage, which was controlled by a sponge tampon. This did not at all interfere with primary union, which was excellent in all. The woman in every instance was fat and plethoric.

I have lost two cases, both of them in hospital practice. One died suddenly from heart-clot on the fifth day after the operation on a cervix with supravaginal elongation. The other, immediately after the operation, inexplicably became comatose, and after lingering in that condition for several days, died. The autopsy revealed a syphilitic gummy tumor of the brain. Neither of these had any fever or any inflammation whatever. A third death ought perhaps to be reported, which occurred in my private practice ; but it was in a case in which both cervix and perinæum were restored in one operation. The lady was delicate, the operation a prolonged one, and followed by excessive vomiting which lasted for several days. She died very suddenly on the fifth day with symptoms of embolism. This very unfortunate result has made me chary of performing both operations at one sitting.

On very rare occasions I have had pelvic peritonitis and cellulitis to follow the operation, but this occurred only in cases treated at a general hospital ; never in cases operated on at their own homes or in my private hospital. All these cases recovered, and with perfect union of the wound. One of them, however, ended in an abscess, but the occupant of the bed next to hers broke out with erysipelas a few hours after she had been operated upon.

I deem the operation of trachelorrhaphy to be a most valuable one—one for which I feel under lasting obligations to Dr. Emmet. Yet I cannot but think that it is performed altogether too frequently.

Very respectfully yours,

W. M. GOODELL.

Dr. James R. Chadwick, of Boston, writes me that he "believes the operation to be an improvement upon previous treatment of such cases in a very limited number of extreme cases. My cases which have not been operated upon have borne more children than those operated upon."

Prof. Skene says "in a general way he believes the operations tend to cure sterility instead of producing it, by restoring the womb to a natural physiological condition capable of going through the period of child-bearing in a healthy instead of a morbid condition."

Dr. Skene thinks his method of operating a great improvement on Emmet's plan and much more. [See American edition Holmes' Surgery, vol. ii, p. 1014.] He "seldom takes more than thirty minutes for the operation, and in a recent case of bi-lateral laceration in which he operated with a perfect result, inserting six sutures, the time of operation by the watch in the hand of his assistant Dr. Thallon, was ten minutes and thirty seconds. Most of his cases of cervix alone stand the operation without anæsthesia.

Dr. Edward W. Jenks, LL.D., of Chicago, writes me that "I have performed many operations for laceration of the cervix uteri from and in various parts of the country, and my inability to say what effect the operation may have had on subsequent labors. * * * I have not known of a single case of sterility in consequence. One case came under my observation where the operation had been improperly done, or rather too much had been done by the surgeon, as the cervical canal almost to the os-internum was closed, and to the left margin of it there was an opening that barely admitted a very small probe. The patient was not relieved of any trouble for which the operation had been performed and was sterile until I opened the closed canal, after whichshe was entirely cured of her nervous trouble and soon became pregnant, and had an easy labor at full term without any re-laceration. I have been unable to hear of any instance of severe or protracted labor consequent upon operations I have performed for lacerated cervixes."

Dr. William H. Baker, of Boston, says in reply that "I have no time to be exact, but I will say that I operated quite a number of times, perhaps 250, and I am glad to state that I cured sterility instead of producing it. Several of my cases have been

confined since and re-laceration occurred in five or six cases. I believe the operation one of the greatest improvements of the age" (entire letter.)

Dr. Engleman, of St. Louis, endorses most heartily Dr. Baker's letter, says he has never produced sterility by the operation, but on the contrary has cured it.

Dr. M. D. Mann, of Buffalo, after giving me the figures stated in the table, agrees with Dr. Baker that "the operation is one of the greatest improvements of the age," and adds, "I think one reason why pregnancy does not oftener follow is that many of the women are in the forties, an age when pregnancy does not occur so frequently."

Dr. Albert H. Smith writes: "* * * I have done so many of the cases in the Lying-in Charity Hospital, and so many in consultation in other men's practice, of which I have kept no histories, that it will be impossible to give you a full statement. * * * I am against the theory as to the resulting sterility. Three weeks ago I attended in *one week three women* at full term, and one miscarriage in patients *on whom I had performed* trachelorrhaphy."

Dr. A. Reeves Jackson, of Chicago, says: "* * * I know of only nine cases out of 118 operations where pregnancy has taken place. Although as many of my patients have come from distant localities, and I have heard nothing from them since, I would regard any estimate based upon such data as quite or almost useless.

"In four cases of the nine in which pregnancy followed the operation, there was no re-laceration; of the others I have no information. I do not doubt that a laceration sufficiently extensive to produce erosion of the cervical lining or enlargement of nabothian glands or endometritis, is a cause of sterility, and that the removal of those conditions by trachelorrhaphy in such cases would be the quickest and surest means of curing the barrenness.

"Dr. Paul F. Mundé, of New York, writes me on the 24th of April that out of 137 operations he has known of thirteen cases which were followed by pregnancy, and says he does not believe the operation has any effect in the causation of sterility, and that it has no injurious effect whatever upon labor. Cannot give exact figures in regard to the percentage of cases of re-laceration, but it does not occur, as a rule, any more frequently than it does in first labors. If it occurs, thinks it is usually in same place."

The explanation of the small number of pregnancies known to me as following operations performed by me, is found in the fact that the cases were brought to me as a specialist by other physicians, and were never again seen by me. I have no doubt that pregnancy occurred after the operations quite as frequently as it does under ordinary physiological conditions.

So far as known to me, the character of labors following trachelorrhaphy have exhibited nothing unusual. Think about 20 per cent. suffer re-laceration in subsequent labors. Dr. Mundé thoroughly concurs with those who regard this operation as one of the greatest improvements of the age. Thinks "it cures sterility instead of producing it," from his own sufficiently large experience.

Dr. Fanny Berlin, of Boston, writes 4th of April that she has performed the operation more than fifty times, but has never had one return pregnant, "yet she is not prepared to say the operation produced sterility."

1st. Because many of those operated on had passed the time of child-bearing—in fact the majority had.

2nd. Many do not wish to conceive again, and use means to prevent conception.

Extracts from a letter of Dr. John Scott, of San Francisco: "I have performed the operation 125 times. Not being engaged in obstetric practice, I cannot state how often pregnancy has followed, but I have known of its occurrence so frequently after the operation when the woman had not conceived for two and more years, that I regard it as a frequent cure for sterility.

3rd. "I have heard that the labors were not severe or in any way rendered more difficult by the operation, except in two or three cases where sufficient os was not left after healing, and then the delay was only temporary.

4th. "Not being engaged in midwifery practice, my answer to this query is valueless. I have, however, known of re-laceration taking place in some of my early cases, but I believe it was owing to the operation having been done improperly. * * * Simple as the operation appears, I look on it as most difficult to perform well, and its success depends largely upon its being thoroughly well done."

"I agree with you in considering the operation one of the most invaluable ever invented and entitling its author to the gratitude of the profession and the public."

Extracts from letter of Dr. H. P. C. Wilson, of Baltimore * * * No operation in Gynæcology has given me more satisfactory results than Emmet's operation on the cervix * * * I cannot recall a single case in which I have reason to think sterility has been produced. I can recall a case where pregnancy occurred three months after the operation, the woman not having been pregnant for 12 years previously. The woman had been in wretched health for several years before the operation. She was safely delivered of a fine child without any laceration and is now in good health. * * * No unpleasant results have followed any of my operations. I believe it is one of the safest operations in surgery. I have kept very imperfect notes of my cases and a great many have not been noted at all, but if I had time to look over those I have, I am sure I would be able to give you more cases in which I have cured sterility by this operation. I have never had cause to regret having performed this operation, nor am I aware that any of my patients ever regretted having it done."

Dr. R. Stansbury Sutton, of Pittsburgh, closes his letter as follows:

"I believe that in cases where the laceration is very slight, to all appearances, often cicatricial tissue in the cleft is acting as a neuroma and in such cases I have had good results—relieving general nervous disturbance.

"I have modified the operation of Emmet in this—I never use silver sutures. In my first 40 operations

I did, but for a year have used only "Salmon gut" sutures—*never cutting them short* but leaving them to hang from the vagina—*to act as a drain*—and to make it an *absolutely painless and easy operation*, to remove them at the end of a week. Nothing would induce me to again adopt silver sutures in cervix surgery."

Extracts from letter of Dr. Wm. T. Howard, of Baltimore. 1st, "I can say little on the influence of Trachelorrhaphy in causing sterility or in curing it. In an immense majority of my cases I have never heard of them afterwards, as about two thirds of all my operations are on persons from a distance. It seems to me, however, that this matter is not likely ever to be decided. For it depends entirely on whether the operation is well or badly done. I have long been of the opinion that of all the operations done in gynecology, this is oftenest badly done.

If well done—if the os externum is well made—not too small and a sufficiently large undenuded track is left, for the cervical canal, the operation cannot possibly interfere with the migratory habits of the spermatazoa—and as a lacerated cervix is one of the most prolific causes of a copious irritating leucorrhœa which dear Sims proved kills the Spermatazoa in numerous instances, it follows of necessity that trachelorrhaphy ought often to cure sterility where well done.

2nd, In regard to the effects of trachelorrhaphy on labor my experience is small, since I have for years been drawing away from obstetrics—and most of the cases I see are in consultation. * * * A few days ago, however, a lady presented herself upon whom I did trachelorrhaphy about two years ago for a bi-lateral laceration.

She had at that time two children, both born without the use of the forceps.

Whether laceration usually occurs in subsequent labors I cannot say. It did in one case partially on the right side but not in the same place—but was not extensive enough to demand another operation.

4th, In regard to the number of my operations I cannot speak with any certainty, since I have never kept a list of them. But as I was the first to do the operation in this city, and had often operated 3 or 4 years before the publication of Emmet's first paper on lacerations of the cervix, I must now have operated a great many times.

5th, I have never had troublesome hemorrhage *in* nor *after* any of my operations, and so far as my memory serves me, never pelvic cellulitis in any case."

DISCUSSION.

Dr. Gordon, of Maine:

Mr Chairman:—There are two or three points in this paper which I wish to endorse most heartily. I have made the operation about 175 times. I have made it where I have no doubt Dr. Emmet would say it ought not to be made; I have no doubt that I have made it where a great many would say it ought not to be made. But I will say this, I believe that all the patients I have operated upon which were in the bearable stage, at the stage in which they would bear children, have been just as liable to and have become as frequently impregnated after the operation as before. I believe it conduces to fertility rather than to sterility. I believe that the operation is important for two things—not only for the symptoms that we usually operate for (backache, pain in the hips, and the usual train of symptoms that everybody admits we should operate for), but by far the most important thing is to reduce hyperplasia of the uterus. I go further than that. I not only make an operation where there is a laceration, but in all cases of hyperplasia of the uterus I take a V-shaped piece out of each side. I have made the operation and taken out the V-shaped piece from the cervix for hyperplasia, where there was no laceration. The trouble is, we do not do enough in making this operation. In the first place, your scissors should be sharp enough that with one cut you take a complete piece off of each side. I believe the man who makes more than one cut on each side, in making an operation for lacerated cervix, for each particular side which he denudes, makes a mistake. The great trouble is with the ragged edges that are left. We are too much afraid about cutting out enough.

While I am in a sense a general practitioner, I avoid obstetrics as much as possible. A man who has not anything better to do than to sit up nights and attend to labor cases, has very little, comparatively, to do, after he has been in practice twenty-eight years, as I have been, and consequently I avoid every case that I possibly can. Yet I have had an opportunity to follow up several cases where pregnancy has occurred, and in but one single case has there been re-laceration, and that was upon the left side in a bi-lateral case. The labor was just as easy, the patient acknowledged, as she had had in either of her previous labors. So I believe that if this operation is done as it should be done, you get no more interference with the labor than if there had been no laceration at all; and I believe that in the operation, where there has been an existing hyperplasia for any length of time, the patient, on account of that operation, shows an easier labor.

Dr. Woodward, of Vermont:

Mr. Chairman:—I wish to call the attention of the Society to one point in this operation which I think is very important. It is this: I think myself the only danger resulting from the operation is cellulitis or peritonitis, endorsing all the other propositions that have been brought before the Society. We sometimes find there is more or less tenderness in the cellular tissues about the uterus, and I generally leave the uterus alone. I do not draw the uterus toward the vulva. I believe it is an almost universal custom to draw the cervix toward the vulva, but I find where there is any tenderness about the cervix it is best to leave the uterus alone, and I have good results in following that rule. I believe that as a rule it would be well to follow it to obviate the tendency or danger of cellulitis. I have adopted it in performing about sixty operations.

Dr. Harvey, of Indianapolis, Ind.:

Mr. Chairman:—I want to address myself to one point in the paper, and that is in regard to this operation being performed oftentimes when it should not be. I want to differ with the views which have

been expressed on that point. If laceration of the cervix exists it should be repaired. That is a point that I want to make. If there is some other disease of the uterus which causes dilatation of the os uteri, that is not laceration; and if gentlemen make mistakes and operate where laceration does not exist, the operation is not to be censured for such mistakes. Why should the uterus be permitted to remain in a state of slight laceration any more than any other organ in the body? Suppose the angle of the eye were torn, is there any surgeon who would not advise some operation for relief? So if the nose were torn. Instead of backing down in regard to this operation, as Dr. Emmet and others have done, and admitting that it has been resorted to too much, even by skilful operators, I say that it has been too much neglected. Even in mild cases, where gentlemen say it should not be performed, but the case treated by cauterization, there the beneficial effects have been shown. There you can cure the case before hypertrophy of the mucous membrane takes place.

I have seen four cases, within the last year, of the cervix where I could trace distinct forms of laceration described by Emmet, not deep, not bi-lateral, where both lips have been torn out; but in stellated form. Therefore I say that we should operate in every case, and in doing so we are honest both to our patients and to ourselves. You take a case of laceration. How do you cure it? With hot water and cauterization, and in six months the doctor thinks the patient is well, and the patient thinks she is well, whereas in three or four months she goes back again, while in one hour's time, by a slight operation, he could have cured her permanently. I think, gentlemen, there is no one operation that has been performed, that has done so much to relieve suffering woman as this which—I agree with Dr. Johnson in terming—"Emmet's operation."

Dr. Englemann, of Missouri:

Mr. Chairman:—I think we are indebted to Dr. Johnson for so thoroughly analyzing this operation. I think it is the most wonderful of all gynæcological operations. I do not think it matters whether we repair the laceration of the cervix, but all the results which come from that, both local and general, we must relieve. I do not see why it should be necessary to operate upon a lacerated cervix simply because it is lacerated. There are some cases of laceration of the perinæum which we do not operate upon, and there are cases of similar laceration of the cervix that we do not operate upon. We simply relieve the symptoms caused by it. There are large lacerations which do not affect the system at all. You have all seen patients with a large torn cervix who are in no wise ailing, and yet there are some with a slight laceration who suffer much. I see no reason why we should operate upon a lacerated cervix unless there are symptoms shown. It is not the surgical union, the surgical result, which measures the benefit accomplished, but it is the important benefit in the local and general condition of the patient, and for that reason I say it is a most wonderful operation—closing that small laceration will change the appearance of affairs completely. I do not believe there is any other operation on any other part of the body which will so thoroughly affect the system, and it is by that we measure the results—not by the union or by the local results. When I say that it is not the local condition which tells us whether we should operate or not, I mean it is not the laceration which forces us to operate, but the symptoms.

Dr. Quimby, of New Jersey:

Mr. Chairman:—Just a word in reference to the effect of the operation on pregnancy. I have had one or two cases where women became pregnant after the operation who would advance to the third or fourth month and miscarry. I have laid each of those cases to the condition of the cervix, and somewhat, I thought, to the operation. How much that is the experience of others I do not know.

In reference to the operation I hold, (and I have examined over two thousand cases which have given me some experience in the treatment of that trouble,) where there is no trouble, no constitutional symptoms, when the patient appears to be in good health, where the uterus appears to be normal, with the exception of this laceration, (especially if it be slight,) I deem the operation improper, simply because it seems to be a species of meddlesomeness—an operation which does not seem to have a cause or a motive. Now I hold that all operations are for the benefit of the patient, and if the patient is not seemingly suffering from the laceration, the operation is not called for.

Dr. King, of Sedalia, Mo.:

Mr. Chairman and Gentlemen of the Section:—I heartily endorse and concur in the general sentiments of the paper and the points made. I do not think that the gentleman who read the paper made a single point that was not a good one, and I wish also to concur in the sentiments of Dr. Harvey, of Indianapolis. If it is true, as laid down by Emmet, that epithelioma is caused by laceration of the uterus, when a woman is threatened with this disease, why not cure that which lays at the foundation for it! Now, I have seen in my experience five cases of epithelioma, which were based upon the laceration of the cervix. I am in a country town in the west, and a woman in a country town in the west who submits to any surgical operation of this kind, is a pioneer in the profession as well as the surgeon who performs the operation. I have done the operation five times in the last year. I have seen the operation performed many times that number. All of them have recovered without cellulitis or peritonitis, and all of them have borne children. The statistics are meagre but the percentage is good. (Applause.)

Dr. Wathen, of Kentucky.

Mr. Chairman:—I wish to correct the statement of Dr. Gordon in giving Dr. Emmet as authority that laceration of the cervix is the sole cause of epithelioma of the cervix. No such inference can be drawn from Dr. Emmet's contributions to medical literature, nor do I suppose that any one who has seen many cases of epithelioma of the cervix would believe lacerations to be the sole cause, since we have cases of this character in women who have never borne children.

Dr. Gordon. How many?

Dr. Wathen. I do not know how many, but I have seen several, and I know that they have not borne children. And I cannot concur in the opinion of Dr. Harvey that in all cases where there has been a laceration trachelorrhaphy should be performed for the purpose of preventing epithelioma. If epithelioma be developed in the neck of the uterus as a result of laceration, it is because there is some local disturbance constantly acting as an irritant, or because there has been an effort at repair which has imperfectly filled the lacerated gap with cicatricial tissue of a low order of vitality—there is a mal-nutrition of the part—but if these conditions exist sufficient to cause epithelioma, then we would have local symptoms which would indicate the necessity of this operation.

In nearly every case of harmful laceration there is hyperplasia of the uterus, and in all cases where we are justified in operating to prevent epithelioma of the cervix, there are symptoms manifesting themselves that are easily observed.

Dr. Reamy, (having temporarily vacated the chair):

I will only take a few minutes. It is in reference to one point that I desire to speak. The paper is upon the results of the operation. If the operation results in preventing cancer, that is one of the most important results. Now, I belong to those who believe that the operation ought to be done where the laceration is perceptible to the examination. I do not mean by this the laceration that converts the virgin os into the parous os, making a lip in front and a lip behind; but I believe with those who have claimed that every laceration that is perceptible, that amounts to a slit, ought to be closed, and ought to be closed without waiting for the symptoms.

If you can do a little operation so that a case of laceration will not become a case of cancer; if you can add one mite to the preventive measure in this direction, it ought to be done,—if for no other reason, it should be done solely on that account. The great Emmet (for no man admires his learning and skill more than I), has recently—I know not why—been going back on some of his most brilliant operations. I endorse the statement that it is too often done, but where there is laceration it is not done too often! (Applause.)

Brief remarks were also made—

By Dr Nash, of Norfolk, Virginia, who endorsed the operation described by Dr. Gordon;—

By Dr. Moses, of St. Louis, Missouri, who stated that he differed with the views expressed by Dr. Engelmann, and believed that the operation ought to be more frequently performed for the actual damage to the cervix than for the general symptoms alone, or, certainly, quite as much so;—

By Dr. Eastman, of Maryland, who stated that he did not believe the operation should be performed in every case of laceration, and expressed the opinion that, in such an event, the gynæcologists would run all the surgeons out of the country;—

By Dr. Kellogg, of Michigan, who stated that he had operated on about one hundred cases, in three or four of which the patients suffered painful menstruation after the operation, which they had not suffered previously thereto; and stated that, in one of the last-mentioned cases, the patient had suffered from severe dysmenorrhœa before marriage;—

By Dr. Hawse, of Missouri, who stated that he did not believe the operation should be performed in every case of laceration; and

By Dr. Dudley, of Chicago, who differed with the opinion expressed by Dr. Engelmann; and stated in corroboration of the assertion made by Dr. King, that he had heard Dr. Emmet make the statement that he (Emmet) did not believe any case of epithelioma started without some primary laceration, and that he (Emmet) doubted the cases of epithelioma reported as having started without laceration.

Dr. Johnson (in reply):

I am exceedingly obliged to the gentlemen of the Section for the kind reception of my paper. Its views have been more generally endorsed than I expected.

With regard to the suggestion of Dr. Gordon, that the operation should be done with one clip of the scissors, I think it would be a most excellent plan to operate in this way if there were scissors that were capable of making that one clip successfully. The only ones I know that are capable of doing that, are the scissors invented by Dr. Skene, of Brooklyn, with which he claims to be able to make the denudation and finish the operation in ten or fifteen minutes. But no one has yet been able to acquire the dexterity which he possesses in the use of that instrument, even.

In cases of cellulitis, the operation should either be postponed until the chronic cellulitis is entirely cured, or, if any reason exist for operating at once, the uterus should not be drawn down, for fear of exciting a fresh attack, but do as Dr. Woodward suggested. But the operation is very much more difficult in cases where the uterus is not drawn down, as it is almost impossible to get at it in such a shape as to insert the stitches properly.

As to the remarks of Dr. Harvey and Dr. Reamy, in regard to sewing up all cases of slight ruptures of the cervix that are unaccompanied by any symptoms which demand relief, I cannot see that the patient could be properly or justly subjected to the risks which I have pointed out as occasionally accompanying the operation, when she is in a condition of apparent health, having no symptoms of any malady whatever. Those gentlemen recommend the operation for cases of slight laceration unaccompanied by symptoms, to prevent the development of symptoms hereafter, and to prevent, also, the development of cancer. The point I make is, that, if there are symtoms leading to the belief, in any way, that cancer is likely to occur from anything whatever which may be present at the time or from any hereditary influences, it would be a proper operation to perform, even if there were no symtoms. But as many women "get on" with a laceration, very well, and menstruate properly; have no distressing leucorrhœa or backache or other disagreeable symtoms; not being aware, themselves, that they have a laceration;—in those cases, I should say that there is no need whatever of performing it, but to await developments; and when

symptoms do arise that indicate the necessity for aid, I render that aid.

Dr. Quimby had reported several cases of abortion occurring after the operation had been made. Those were the result of his experience, but the results of those who have had a very much larger experience, and of those who have written on the operation, making up what we have of the literature on the question, show distinctly that abortion is very much more likely to occur before the operation than afterwards; that the operation is performed particularly for the cure of the habitual abortion into which the woman goes; and one of the best effects of this operation is to cure the habit of abortion.

The case reported by Dr. Kellogg, as I understand it, was one in which the patient suffered great dysmenorrhoea pains even before her marriage, and that her dysmenorrhoea could not be attributed to the operation or to its effects, in any way, because she had the pain before she was married and it returned subsequent to her having had children. It appears to me, therefore, that it had no connection whatever with the operation or the mode of performing it. [Applause.]

Dr. Kellogg: The patient had the pain before marriage, but had no pain after laceration. After the laceration was cured, the pain returned.

MEDICAL PROGRESS.

SURGERY.

Varicose Veins in the Hypogastric Region.—Dr. Troisier presented a case of this character before the *Société Medicale des Hopitaux de Paris*. The patient, 33 years of age, was a mason and for three or four years had suffered from varices of the legs; he also bore upon his left leg the cicatrix of an ulcer which opened anew from time to time. About 2½ years ago he noticed that a large sub-cutaneous vein had developed on the anterior abdominal wall between the left inguinal region and the umbilicus. Since that time the left leg seemed heavy and showed some signs of tumefaction. Later (March 15) he felt pains in the legs and noticed that the varices had become hard prominent cords. A few days afterwards the varix of the abdominal wall became equally painful. On examination, the internal saphenous vein of the right side was found to be filled with coagulated blood; on the left side this coagulation did not pass beyond the middle third of the thigh, but on that side a large vein was seen to pass towards the groin, and after crossing the groin, to pass up the abdominal wall from left to right, forming a sort of horseshoe immediately below the umbilicus. This vein formed sinuousities that were very hard, and it was completely obliterated—it was about the size of a pen-handle. From its convexity, a non-sinuous, dilated vein was given off. Further, just below the left groin, there was a permeable vein with several branches.

Here there was a true serpentine varix developed at the expense of the left sub-cutaneous abdominal vein, which commencing in the groin extended to the trunks at its saphenous opening, then extended to the opposite side by communicating with the right sub-cutaneous abdominal vein. What produced the development of this varix? He had received an injury to the left groin some three years before, but it healed perfectly and there was no trace of it left. Leaving that out of consideration no other cause could be ascertained as there was no intrapelvic tumor to press upon the iliac veins, and it would seem to be a case of spontaneous varix.

The question might arise, as there was a coagulation of blood in the varices, was there not a cachetic thrombosis? While the man is not very robust and presents signs of anæmia, he presents no signs of tubercular lesions of the lungs or peritonæum, or symptoms of marasmus. There are no hæmorrhoids, varicocele or symptoms of arthritis. The pain, the the ecchymotic color of the skin, indicate inflammation and a varicose phlebitis.

In the discussion of this case, M. Legroux referred to a case which he had seen the year before, of a woman sixty years of age, who had suffered for years from a fibrous tumor of the uterus, and who presented a varicose development of the abdominal cutaneous vein, the terminal divisions of which joined the mammary veins which were equally dilated. These abdominal varices were the seat of a phlebitis.

MEDICINE.

The Apyretic Form of Typhoid Fever.—M. Brothier (*Jour. de Med. et de Chir. Pratique*) has collected a large number of observations which demonstrate the existence of a dothinenteritis, in which the temperature does not exceed the normal, at least if there be no complications. While this condition is found to exist, there are but few authentic instances; and this form should not be confounded with the ambulatory form of typhoid fever, which is accompanied by an elevation of temperature.

In these cases the symptomatology is not markedly different, with the exception of the absence of fever, from that observed in a light case of typhoid fever. The abdominal symptoms are but little marked, but the nervous phenomena are pronounced—the tendency to vertigo, the cephalalgia, frequently prostration and stupor, slowness of speech, tremulousness of the tongue and lips, the decubitus, pains in the limbs, and the typical facies, all form marked characteristics of the disease. At the end of a few days these symptoms all disappear by degrees, and the disease is supposed to be terminated. But, on the contrary, the intestinal changes are continuing, and from the seventeenth to the twenty-fifth day hæmorrhages or perforations develop themselves, and the autopsies demonstrate that the alterations pass through their three usual phases, in such a manner as that long after all morbid symptoms have disappeared and the patient has commenced to feel hunger, he is exposed to the ordinary complications of the disease. We see produced in such cases peritonitis without perforation,

the sacral bed-sore, and the degeneration of the muscles, notwithstanding the absence of fever.

The cause of this anomaly is probably due to the attenuation of the virus on the one hand, and to the feeble intensity of the local manifestations on the other. But the important point is that of diagnosis, for it admits of preventing grave complications. It can only be established, in the absence of the fever, upon the group of symptoms so commonly present in typhoid fever. The rose spots constitute the most positive of these symptoms; then comes the nervous phenomena, the hypertrophy of the spleen, and the characters of the diarrhœa and the urine. It is important to recognize the fact that the patients must remain in bed, as in the ordinary forms. In this way there is a better chance of avoiding serious complications. But the absence of fever constitutes a difficulty where the diet is concerned, as ordinarily the presence of fever contra-indicates solid food. In this form it is best to abstain from solids for eight days after the disappearance of the rose-colored spots, or, if they be absent, after the disappearance of the other symptoms.—*Arch. Med. Belges.*

THERMIC SIMULATION IN A CASE OF HYSTERIA.—Dr. Du Castel reports to the Société Médicale des Hôpitaux (*Bulletin*) an account of a hospital case where a young woman 21 years of age, who suffered from certain pronounced nervous symptoms of a character to cause the suspicion of a lesion of the cerebrum, caused the falsification of the thermometric record in such a manner as to defy detection and to break several tubes from the elevation of the mercury. The thermometer placed in the vagina and under the axilla would rise to 113° F. in an irregular manner and at all hours of the day. Sometimes the vagina would show a normal temperature, while the axilla would be elevated, and *vice versa*. This of course aroused suspicion, so she was given a new thermometer and left to her own devices, when the mercury rose to over 118° F., and soon the tube was broken. Another reached 168° F.

One of the hospital assistants, M. Espaignet, found that by striking lightly the upper end of the thermometer while in the axilla, it was possible to produce an indefinite rise in the column of mercury. The patient then being watched, was seen to quietly introduce her hand beneath the bed-clothes and heard to tap the thermometer in the vagina. The next day Dr. Du Castel, while taking the temperature in both axillæ, turned away as if by accident for a moment, and on returning to his patient, saw her draw her hand away quickly from the extremity of the thermometer in her right axilla. When the thermometers were withdrawn, the right registered 37.9° C., the left 37.2°.

The patient left the hospital without admitting any fraud on her part, but the doctor was satisfied that this was the mode of committing it, and with such ease as to deceive completely the externes and nurses placed to watch her; she profiting by the slightest opportunities caused from momentary absence.

A NEW METHOD OF TREATMENT OE ACUTE PLEURISY.—Prof. Picot (of Bordeaux), describes his new method of treating acute pleurisy when it has been found necessary to puncture. It has been his custom after thoracentesis to apply immediately a large blister over the region, to prevent, as far as possible, any re-formation of the fluid. But, in order to produce a more powerful revulsion, his assistant, Dr. Cayla, after evacuating the fluid as completely as possible, covers the affected region with cauterized punctures made by the thermocautère. These cauterizations are practised immediately after the evacuation; they are very numerous, but a short distance from each other, and their application is followed by a powerful revulsion over the whole of the thoracic region corresponding to the diseased pleura. This method has been used several times without accident. The patients, men and women, bear it well, and the punctures are made with care that the cauterization shall not include more than half the thickness of the derm.

M. Picot cited in support of his method a number of favorable cases, in all of which there has been no return of the fluid, and a cure was effected in a few days. One case was particularly interesting—it was a case of acute miliary tuberculosis, with a considerable accumulation of fluid on the left side which required thoracentesis; 2,050 grammes of fluid were evacuated, and the cauterization was performed as usual. There was no return of the fluid to be detected by physical signs, and the patient dying some little time after by the progress of the tuberculosis, the autopsy showed that the pleura from which had so recently been extracted a large quantity of fluid, no longer contained any traces of it.

PATHOLOGY.

THE HISTOGENESIS OF TUBERCLES.—According to Professor Baumgarten, of Königsberg in the *Centralblatt für Klinische Medicin* (*Medical Times*), the development of specific tubercles can be studied most easily and accurately in the changes which take place in the iris of albino rabbits after tubercular matter has been introduced into the anterior chamber of the eye. The first stage is the migration of the bacilli from the particles introduced into the iris tissue, which at this period is perfectly healthy. The free bacilli themselves enter the iris, they are not conveyed into it by wandering cells, and when there they multiply and spread in the tissues. On the tenth or eleventh day after inoculation the iris still looks healthy, although bacilli can be found all over it, both in the intercellular substance and in the cells. In those spots where the bacilli begin to group themselves into nests, changes take place which always lead to the production of typical tubercles.

Whilst in their normal condition the fixed cells of the stroma of the iris of albino rabbits have the form of thin plates, which appear if seen edgeways as free oval nuclei attached to the wall of the particular intercellular space under observation; under the influence of the bacilli these cells swell up to large cubic or polygonal masses of protoplasm (the epitheloid cells of tubercles of authors). The fibrillar

intercellular substance becomes compressed and rarified by the pressure of these, and is more and more reduced to that delicate network known as the reticulum of the tubercle. Whether a hyperplasia and multiplication of the fixed connective tissue cells take place as well as this hypertrophy of the individual cells is not certain, but if it occur it must be in so slight a degree as to take only a subordinate place in the formation of tubercles. The giant cells of tubercles must at present be considered as rising from a fusion of several of these epitheloid cells and not from a multiplication of the nuclei of a single cell.

The wandering leucocytes take no part in the formation of these epitheloid tubercles; a tubercle having this structure can be perfectly developed without the aid of single leucocyte, and the few which wander into it in the course of its development perish—they shrink to irregular masses and ultimately break up into small granules. The number of bacilli in the nest which gives rise to one of these epitheloid tubercles in the iris of an albino rabbit is never very great even when the tubercle is completely developed, but the bacilli increase in number from day to day, and after some time an attack of iritis sets in, generally suddenly; there is a rapid dilatation of the blood vessels and numerous leucocytes migrate into the stroma towards the tubercles. If the tubercles are examined at this stage, we find they present the typical structure of a Wagner-Schüppel tubercle, a sharply contoured cellular mass containing no blood-vessels, the centre composed of epitheloid cells and generally one or several giant cells, the periphery prazone more or less wide, composed of lymphoid elements, the whole penetrated by a delicate fibrillar network.

The bacilli in the nest become more and more numerous, and this immigration of leucocytes into the tubercle goes on till the whole mass has the appearance of a small-celled lymphoid structure. The only subsequent changes which can possibly take place in a tubercle after it has reached this lymphoid stage, are those of degeneration and destruction. No lymph cell tubercle has ever been seen to change into an epitheloid or a giant-celled tubercle in the iris of a rabbit. Other studies of the development of tubercles in other parts of the body and other tissues appear to show that tubercles always grow in a similar way, the different appearances depending on the rate at which the tubercles develop and at which the different stages follow one another. The rate of growth varies with the number and vigour of the bacilli; the more rapid the increase in the number of these, the more quickly does the primary epitheloid tubercle change into a lymphoid tubercle, and in very malignant cases the bacilli may multiply so rapidly that the epitheloid stage has such a short duration that the tubercles appear to be developed at once in the lymphoid stage, and consequently break down at a correspondingly rapid rate.

On the other hand, the tubercles may retain their epitheloid and giant-celled structure for a very long time when there are but few bacilli. From these observations we can understand how the pure lymphoid tubercles are the most malignant, and are only found in the worst cases, the mixed Wagner-Schüppel tubercles in more chronic ones and the almost purely epitheloid forms in cases of tuberculosis of lymph glands, lupus, tubercular disease of joints, etc.

OBSTETRICS AND GYNÆCOLOGY.

The Relations of Ovulation and Menstruation.—Dr. Lawson Tait considers this question in a paper read before the Midland Medical Society (*Medical Times*). His views as expressed in his book on "Diseases of the Ovaries" are, that menstruation has no analogy to the vestrus or rut among the lower animals, and he thinks there is not the slightest foundation for saying that women have stronger sexual desires at the menstrual period than at others. Then comes the question, has the so-called ovarian excitement, alleged to arrive at the ripening of a follicle, anything to do with the process of menstruation?

In answering this Dr. Tait reviews the literature of the subject and concurs strongly with the views of Dr. A. Reeves Jackson as published in an article in the American Journal of Obstetrics for October 1876, and concludes that in those cases of double ovarian cystoma, in which menstruation goes on during the growth of the tumor, that process cannot in any way be dependent on the ripening and discharge of ova. To support his views he gives the record of examinations in 49 cases of operations for removal of both ovaries, resting there satisfied that the evidence so far has completely destroyed the ovular theory of menstruation. These cases arrange themselves as follows:

1. Cases, nine in number, where it was evident that menstruation and ovulation were concurrent.

2. Cases of negative proof against the ovulation theory of menstruation, fifteen in number.

3. Cases, twenty-five in number, affording positive evidence against the theory.

In one case where the appendages were removed for menstrual epilepsy, age 23; the operation was performed four days before an expected period; one follicle had just burst (probably did so during the operation) in the right ovary, and another was nearly ready in the left ovary. This would seem to indicate according to the older theory that it might happen that occasionally menstruation should occur twice within a very few days, with a perfectly healthy uterus and ovaries, for in that case and in others it was quite clear that two ova would be discharged within a few days of each other.

Another inconsistency is that the most marked and proper menstruation has been in cases of disease of the tubes, just as the most profuse lachrymation occurs in inflamed eyes; but in these cases, as a rule, not only is there no ripe vesicle to be seen, but the ovaries are generally so disorganized that no vesicles of any kind are visible. These conditions clearly show that the ovaries have little or nothing to do with menstruation, and render it highly probable that the tubes are largely concerned in it.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor

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SATURDAY, JULY 5, 1884.

EPIDEMIC CHOLERA.—The recent outbreak of cholera in Toulon of which notice was given in the last JOURNAL, has been so sudden and severe as not only to create a panic among the citizens at home, but also to awaken intense solicitude everywhere, lest the scourge should defy all sanitary restraints, and again traverse Europe and America as in former times.

From the most reliable advices at our command we gather the following facts:

The presence of cholera in Toulon was not generally known until June 24. On the 14th of June one death had occurred, on the 19th, one; 20th, two; 21st, three; 22d, thirteen; 23d, five, and on the 24th, twelve.

It is stated that the greater number of cases are of a mild character, about equally prevalent among civilians and the military, chiefly among the aged and the young.

At a meeting of physicians of Toulon, held on the 28th inst., it was the opinion of a majority of them that the epidemic was Asiatic, and that all measures known to sanitary science for its control should be at once adopted, and vigorously executed.

On June 24 cholera mades its appearance at Marseilles, a child aged 13 months, and a youth of 17, dying from the disease. The boy had contracted the disease while at school in Toulon. The American Consul has been instructed by our Government to cable the daily progress of the disease. Our latest reports state that on June 25 there were ten new cases reported at Toulon. Roman advices note the arrival of one cholera patient direct from Toulon, who was immediately isolated from the public.

With reference to quarantine efforts we learn that all the roads and mountain passes of France are being carefully guarded to prevent the passage of persons afflicted with cholera. Austria is also moving in the matter, and proposes at once to quarantine against vessels arriving from the Western Mediterranean ports. Vessels arriving at Trieste are placed in quarantine ten days, if the crews are in healthy condition, and for twenty days if there is any suspicion of sickness. With reference to the early and thorough sanitization of all the great cities and thoroughfares, both in Europe and America, we enter a most emphatic appeal. The work can not be too thoroughly done, nor too soon. It becomes all organizations and individuals charged with the conservation of the public health to use the utmost diligence to perfect the most approved methods of prevention, and to have their plans fully and wisely matured for the disposition and treatment of patients, whenever and wherever the disease may make its appearance.

It is unwise to create any unnecessary alarm, and we sincerely hope the disease may be controlled to its present limits, but it becomes the medical profession everywhere to exert itself wisely and vigorously to secure to the people the utmost exemption possible from cholera invasion.

Later: Since the above was written, despatches to July 1 show a continuance of cholera both at Toulon and Marseilles, and its extension to the suburbs of the former city. At Daluzzo, in Italy, one case is reported which proved speedily fatal. It was in the person of a workman recently from Lyons, where several cases have also occurred. If the disease follows the course of nearly all the former epidemics, it will extend over the greater part of western Europe during July and August, but will not develop in this country until the summer of 1885. There are already indications, however, that the ratio of deaths from the diarrhœal or choleraic affections will be unusually high during the present summer, especially in most of our cities. The deaths in Chicago for the week ending June 28 were 29 more than during the corresponding week of last year. The utmost attention should be given to the maintenance of the best sanitary conditions possible, both by municipal authorities and individual citizens. Such attention is as important in its bearing on the prevalence of the ordinary diseases of every year, as upon that of the most dreaded epidemic.

YELLOW FEVER.—This disease continues to prevail in Havana and other places bordering upon the Gulf, and extends into Guaymas in Mexico; thereby keeping the sanitary authorities in our Southwestern States on the alert.

SUBSCRIBERS.—A few of those who subscribed for the JOURNAL by signing and returning the first pledge of support, and who have been receiving the JOUR-

NAL regularly all the past year, have not yet paid their subscriptions. Bills have been sent to all such, and we trust the amount will be remitted to this office without delay. All members of the Association should remember to remit their dues to the Treasurer, R. J. Dunglison, M.D., Lock Box 1274, Philadelphia, Pa., early, and not wait, as many did last year, until near the close of the JOURNAL year, and then expect to be supplied with all back numbers.

LITERARY HONORS.—At the recent annual meeting of the Faculty and Trustees of the Northwestern University, the honorary degree of Master of Arts was conferred upon Dr. Ralph N. Isham; and the degree of LL.D. was conferred by Dickenson College at its 101st anniversary Commencement upon Dr. Samuel J. Jones, both well-known members of the profession in this city.

TO NEW MEMBERS OF THE ASSOCIATION.—We are dependent upon the Treasurer for the names and address of all new members who first joined the Association in Washington. The names of most of those who reside in the larger cities are not accompanied by any street or number, in consequence of which many of the copies of the JOURNAL are delayed in the delivery, and some go into the general delivery department, and not being called for, they are lost, while those for whom they were designed are blaming us for not sending the JOURNAL. The fault is not with the Treasurer, but in the failure of each member when registering at the meeting, to add the street and number to his address. Let all who find their address faulty immediately inform us by postal card, and this difficulty will be obviated.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Special meeting, June 6, 1884. Vice-President Dr. B. F. Baer, in the chair.

Dr. Wm. Goodell exhibited specimens of

PYO-SALPINX AND HYDRO-SALPINX.

In the former case the lady was unmarried, and had suffered from pelvic pains and menorrhagia for several years. Last autumn a tumor was discovered by her physician, who deemed it a fibroid of the womb. Early this year her sufferings became so great that she took to her bed. Very large doses of morphia were needed, and septic symptoms now set in. After she had been in bed for several weeks, Dr. Goodell was called in to see her. The tenderness of the abdomen was now so great that the examination was made under ether. Even then the diagnosis was obscure because she flinched and her recti muscles became tense whenever the abdominal wall was pressed upon. A cyst was discovered, but of what nature it was impossible to determine. Dr. Goodell operated on her at his private hospital, The womb was studded with small fibroid nodules, posteriorly it had an outgrowth as large as a small egg. Closely adherent to the womb, to the pelvic fascia and to the intestines, was a thick-walled cyst of the left ovary, as large as the largest orange. The corresponding oviduct was very thick and enlarged to the size of a small sausage. It and the cyst were filled with a very dark purulent fluid, although there was no communication between them. The lower end of the cyst had become necrosed, and was so thinned out that it would very soon have given way at that point. On account of the presence of fibroids in the womb, the right ovary was also removed. Attached to the fimbriæ of the oviduct were three very beautiful pedunculated vesicles; while two others not yet pedunculated lay in the stroma of the broad ligament. The recovery of the lady was uninterrupted.

In the case of hydro-salpinx, the patient was a widow aged 37, who had been sent to him in order to have her ovaries removed. Severe pains began a week before the menstrual flow, culminating during the flow and continuing one week longer, then fading gradually away. For three weeks out of every month she was confined more or less to the recumbent posture, and wholly so during the menstrual week. A tear of the cervix and one of the perinæum had been well repaired by two surgeons, but with no improvement. Dr. Goodell wished her at first to try the rest treatment with massage, electricity and graded muscular movements, for he had repeatedly cured cases of this kind through such a mode of treatment. She was, however, too poor to take this treatment privately, and was therefore urgent to have her ovaries removed. The operation was performed fifteen days ago, and she is now doing very well indeed. The ovaries as exhibited were much enlarged, and showed marked follicular degeneration. From this condition Dr. Goodell thought that nothing short of the operation would have cured her. Attached to one oviduct was a delicate vesicle with a thread-like stem of over an inch in length. In view of the frequency with which they are found, he could not but think that these vesicles played some role in the economy, and that they had sometimes a pathological bearing. He had on several occasions met with small post-uterine cysts which burst either spontaneously or under the pressure of an ordinary vaginal examination. Taking advantage of this fact, he had quite recently burst one designedly by bi-manual pressure. Such delicate cysts, and also those very movable ones which remained small without increase in bulk, he was disposed to attribute to these vesicles. After bursting these cysts sometimes refill. One he had known to burst and refill at least six times before it disappeared. New small ovarian cysts had, in his experience, thick walls, and, further, they rarely remain small any length of time. Dermoid cysts, on the other hand, often remain stationary for years, but they were generally not very movable, and they also had thick walls,

Dr. Albert H. Smith had found these cases of pyo-salpinx very difficult of diagnosis. He had been present at an operation by Knowlsley Thornton upon a case in which the lesion was double and both tubes and ovaries were removed. Rupture had occurred previously, and had been followed by peritonitis. The patient recovered.

Dr. B. F. Baer inquired if Dr. Goodell would recommend rupture of cysts arising from the hydatids of morgagni.

Dr. Goodell would consider it good surgery for the purpose of preventing the further growth of the cyst. He had always found the fluid in small cysts to be unirritating.

Dr. Albert H. Smith remarked that Schroeder holds that the fluid of an ovarian cyst is not noxious to the peritonæum. He makes no effort to protect the peritoneal cavity from its ingress during an operation, and yet his statistics show a remarkable success.

In response to a question by Dr. C. Meigs Wilson, Dr. Goodell stated that the dressing of the wound after the operation was glycerole of carbolic acid with the Lister gauze.

Dr. Goodell also gave the following history of a case of hysterectomy. The woman was unmarried, aged 47. Her monthly fluxes began to be free in 1867. A year ago they became so exhausting that she could not persue her trade as a seamstress. On April 30 she consulted Dr. Goodell, who found the whole abdomen filled with multiple fibroids of the womb. The cervix had disappeared and the os uteri lay so high up that it was not possible to introduce the sound. The operation was performed at the Hospital of the University of Pennsylvania, on May 22, on the same day with the preceding case. One outgrowth as large as the two fists contained a cavity filled with cheesy matter, and was so adherent to the abdominal wall and intestines as to need the knife for its release. It was possibly the right ovary, but he was by no means certain. Koeberle's wire-clamp was passed around what corresponded to the neck of the womb, but it was as large as his arm above the elbow. The woman's recovery thus far has been uninterrupted. The temperature reached 100° but once. The clamp fell off on the 16th day, leaving a very deep funnel-shaped pit. He had intended to exhibit the specimen, but it was too bulky to carry and also had become quite offensive. In this case had he been able to reach the ovaries or to have discovered them he would have removed them in preference to performing hysterectomy; but the firm adhesions prevented the rotation or the lifting up of the tumor, hence the ovaries were inaccessible. Sometimes even when the uterine fibroid can be lifted out of the wound and the ovaries reached, these organs are so embedded in the fibroid, or so drawn out in ribbon-form on the surface of the tumor as to make their complete removal impossible. When, however, the ovaries can be removed with safety, the operation is a most promising one, as he could attest from several most successful cases.

Dr. W. T. Taylor reported the following case of Partial Placenta Previa. Mrs. S., an English woman, aged 46 years, the mother of ten children, came to see me in December, 1883, in consequence of abdominal pains, headache and vertigo, with a suppression of her menses which she attributed to a "change of life," as she had been irregular for a year past. She also had numbness with tingling in the hands and feet and had not been so affected in any former pregnancy. Consequently she would not believe in her condition until some weeks later when she quickened. In the month of February last she had enlargement of the veins of the legs with edema of the feet and ankles, for which she took occasional doses of potassium bromide with a solution of cream of tartar (℥i to water one pint) to be taken freely. By this treatment she was temporarily relieved.

On March 27, she had abdominal pains and a profuse hæmorrhage which saturated her clothing and greatly alarmed her. On examination I found the os-uteri high up and slightly open. Although the hæmorrhage diminished, yet the pains would recur at intervals, and I fully expected labor would soon begin. Under the use of equal parts of wine of ergot and solution of sulphate of morphia she began to get easier, and in a few days was out of bed and able to resume her household duties; feeling more comfortable, as the enlarged veins were smaller, her feet and ankles had diminished in size and the headache gone entirely. I told her that nature had come to her relief and bled her without my ordering it.

Feeling satisfied that this was a case of placenta previa and that there was no immediate danger, I concluded the most prudent course was to let nature alone and wait until labor began. She had no more trouble until May 10, when she passed a large clot of blood and complained of slight pains in the abdomen; these occurred occasionally for two days, when the membranes ruptured and a sudden gush of water followed by a flow of blood indicated that labor had begun. On examination, I discovered within the os a spongy, ragged, bleeding mass of tissue, which was recognized as the placenta; with each pain the flow of blood increased as the cervix dilated. Sweeping my index finger around within the mouth of the womb, as far as I could reach, to detach the placenta from the uterine walls and assist the first stage of labor, I felt the fetal head beyond.

To arrest the bleeding, which, if it continued, would exhaust the mother and destroy the child, I plugged the vagina completely with strips of old muslin well saturated with lard and waited patiently for the os to dilate and the head to advance, giving at the same time occasional doses of quinine and wine of ergot as a tonic and stimulant. In about an hour the advancing head had expelled a part of my tampon, and on removing the remainder, I found that the bleeding had ceased and the vertix was presenting in the left occipito-posterior position. Auscultation revealed a feeble fetal circulation, but as the pelvis was roomy and my patient somewhat exhausted, I gave her freely of milk-punch until her pulse became stronger, which it did in half an hour, when as the head had ceased to advance I applied the forceps and delivered her of a medium-sized girl, which in a few minutes began to cry with some vigor, contrary to my expectations, for I had told them it would probably be dead. Its vitality had been preserved by the adhering part of the placenta, which then came away quite easily. A teaspoonful of fluid extract of ergot contracted the womb firmly. My patient was weak for several days, but under the use

of tonics with nourishing food she soon recovered her usual strength.

Dr. A. H. Smith remarked that this case being partial and without profuse hæmorrhage could have been best carried through by rupturing the membranes and bringing down the head, which would have stopped the hæmorrhage as soon as it engaged in the superior strait. Dr. Smith asked the question, Under what circumstances are we warranted in interfering? If the hæmorrhage is alarming and the patient exhausted, she is in a poor condition to bear interference, and on the other hand we have no right to interfere if there is no pain or hæmorrhage. To interfere by manipulation is very dangerous unless the uterine contractions are rapid and effective after labor once begins. The position of the child should be carefully and accurately determined by external manipulation before interference becomes necessary, so as to know where to seek the feet if turning becomes imperative. When the placenta previa is complete, dilatation of the os causes a terrific hæmorrhage, the blood streams from the patient like water from a hydrant or a small fire-plug and death comes very quickly. Only perfect knowledge of the condition of things and the position of the child will enable the physician to avert the doom. Now as to the tampon. I would not use it. It hides the hæmorrhage which may be going on profusely behind it, as was so vividly described by Dr. Goodell in his paper on Concealed Accidental Hæmorrhage of the Gravid Uterus, in Vol. 2, *American Journal of Obstetrics*, in which he showed that the woman might bleed to death without one drop of blood escaping externally. The tampon conceals the hæmorrhage without necessarily preventing it, and while it remains in place one hand of the physician should be constantly on the patient's pulse to note instantly any failure of the heart; while the other should be on her abdomen to note any changes in size of the uterus or position of the fetus. In Dr. Taylor's case the treatment was beyond criticism because the result has been happy.

Dr. Goodell agrees with Dr. Smith that placenta previa is the most formidable complication in obstetrics. No general rule can be made applicable to the treatment of all cases. In partial ones the membranes should be ruptured and the head brought down. It must always be borne in mind that in these cases the implantation of the placenta has caused increased vascularity and thickness of the cervical walls, they are easily ruptured, and if torn, bleed profusely. There is greater danger of septicæmia from absorption of decomposing lochial discharges when passing over this surface if it is torn. He well remembered one case which he attended years ago in consultation with Dr. Augustin Fish, since deceased, in which, in consequence of what he now considers undue haste, lacerations of the cervix occurred and, although the labor terminated happily, septicæmia set in a few days later and resulted fatally. It would have been better in that case to tampon. When the placenta is not central there is very little danger, there is some. The tampon may be used, but the pulse must be constantly watched and frequent abdominal palpation should be made. He had been struck with the method practiced by Dr. Ellwood Wilson more than twenty years ago. It consisted in gentle digital dilatation of the os, introducing first one finger, then two, and so on; as soon as sufficient space was obtained he gave ergot, made podalic version and delivered. Very few practitioners advise that method. Dr. Goodell had not met with many cases, and the one spoken of above was the only fatal one. He has used Barnes' dilators, taxis, strength and courage and has tried to adapt his treatment to the indications of each particular case.

Dr. W. H. Parish thought the tampon was not used as frequently now as it was a few years ago, either in the form of Barnes' dilators or the vaginal plugs. Under similar circumstances he would probably do as Dr. Taylor did. Partial placenta previa is not very dangerous, but in complete the hæmorrhage is excessive. In one case he had tamponed for several hours when, the os being dilated he etherized and readily delivered a living child. The mother was in imminent danger of death from hæmorrhage. The abdominal aorta was compressed, ice was used to the cervix, but without success. The hæmorrhage was controlled by the application of a cloth, wet with Monsel's solution to the denuded cervical and uterine surface.

Dr. Taylor has used the tampon in several cases of partial placenta previa and in numerous cases of abortion, and has never yet had bleeding to go on behind it. The line of treatment practiced in this case has always proved satisfactory as regards results.

Dr. Goodell remarked that the womb at term was large, and concealed hæmorrhage might be free enough to cause death, but there was no such danger in an abortion at two or three months.

Dr. B. F. Baer exhibited a specimen of sub-mucous and interstitial uterine fibroid, and read the following report of the case: Mrs. G., aged 51 years, married, four children. Her first child was born after she had reached her 30th year, and the last one when she was 38, thirteen years ago. Her labors were very severe. Several years ago she began to lose large quantities of blood with her catamenial periods, and to suffer severely with labor-like pains. This continued with increasing quantity and severity until the cause was removed. Two years ago she had so great a flooding, that it was thought for weeks she would succumb. She gradually recovered from the immediate effects of the hæmorrhage, but has been losing flesh and strength ever since. Moreover, as she would recover a sufficient amount of strength to support it, a severe metrorrhagia would recur. Recently she had rarely been free from bleeding and a profuse non-fœtid watery discharge.

At the request of my friend, Dr. Fred. C. Seiberling, the family physician, I met him at the home of the patient, at New Tripoli, Lehigh county, Penn., when I saw her for the first time. She had a sallow, jaundiced, and anæmic-looking surface, was somewhat emaciated, but did not have the characteristic cachectic appearance of carcinoma. Her pulse was 120, and not strong. As she was too weak and excited to permit of a thorough examination without it,

ether was at once administered by Dr. J. W. Seiberling, when the following condition was revealed by physical exploration: The upper portion of the vagina was occupied and distended by the cervix uteri, which was stretched and expanded over a firm, rounded mass, which presented at the os; the latter was dilated to about the size of a silver dollar, and the body which presented resembled very much in size and shape the head of a seven-months' fœtus. Bimanual examination showed the uterus to be as large as at the end of the sixth month of gestation, and rather symmetrically developed, but it was quite firm and resisting, if not hard. The sound could not be introduced for the following reason: On the right side the tumor was firmly attached to the cervical wall all the way to the external os, and on the left almost to the same extent, though here I was able to pass the sound and finger to a depth of about an inch. I confirmed Dr. Seiberling's diagnosis of sub-mucous fibroid, and thought from the size of the uterine globe, as outlined by abdominal palpation, that the tumor had also a deep interstitial attachment or *nidus*. I advised an attempt at enucleation of the growth as the only means of saving the life of the patient, and with the assistance of Drs. F. C. Seiberling and W. K. Kistler I proceeded with the operation. I was at a loss, at first, to explain the close connection which the tumor had with the cervical walls, a connection so intimate that it seemed in part to grow from that organ, but the history of the growth of the tumor was against that idea; the patient had been under close observation at least four years, during most of which time the cervix was free from disease. There had been no evidence of abnormal growth in the cervix until six months before the date of operation; about that time the tumor was detached at the internal os. I thought that the close connection with the cervical wall might have been due to adhesive inflammation, and acting on that theory I began my operation by trying to separate the adhesions, but I soon found that I had made a mistake, and that I was dissecting up the tissues of the cervical wall. I then concluded it must be the capsule of the tumor, which had been stripped off by the growth as it was made to advance toward the external os by contractions of the uterus, and this view was confirmed, for when I had removed the tumor the capsule hung as a curtain from the edge of the external os. After vainly endeavoring to deliver the tumor by traction, I cut directly into it with scissors, dividing the mass into two portions. I then introduced Thomas's spoon-saw into the cavity, and with it and my fingers I tore the growth from its nest in the fundus and sides of the uterus, removing it piecemeal. Very little hæmorrhage occurred during the operation, which occupied fully an hour and a half. After trimming the ragged edges of the capsule from around the os, I injected the cavity with vinegar and packed it full of sponges saturated with the same excellent antiseptic and hemostatic. A gr. ss. morphia suppository was placed in the rectum, the patient removed to her bed and surrounded by bottles of hot water. She reacted nicely, and in the evening 10 grains of quinine were given. On the next day the sponges were removed, the cavity irrigated with carbolized water and repacked as before. Under the care of Dr. Seiberling the patient has recovered without an untoward symptom. The tumor probably weighed three pounds.

W. H. H. GITHENS, Secretary.

STATE MEDICINE.

The following law relating to Medical Examiners and Coroners was recently enacted by the General Assembly of Rhode Island:

CHAPTER 420.

An Act relating to Medical Examiners and Coroners.

(Passed April 30, 1884.)

It is enacted by the General Assembly as follows:

SECTION 1. The Governor shall appoint, in each county, able and discreet men, learned in the science of medicine, to be medical examiners in such county.

SEC. 2. The number of medical examiners appointed, as provided in the preceding section, shall be as follows:

For the County of Washington, five Examiners, one in each of the five following districts, viz.: District one composed of the town of Westerly; District two of the town of South Kingstown; District three of the towns of Hopkinton and Richmond; District four of the towns of North Kingstown and Exeter; District five of the town of Charlestown. For the County of Kent two Examiners, one in each of the two following districts, viz.: District one composed of the towns of West Greenwich and Coventry; District two of the towns of East Greenwich and Warwick. For the County of Providence, eleven Examiners, one in each of the first nine following districts; and in District ten two Examiners, viz.: District one composed of the towns of Scituate and Foster; District two of the towns of Cranston and Johnston; District three of the town of Glocester; District four of the towns of Smithfield and North Providence; District five of the towns of Burrillville and North Smithfield; District six of the town of Woonsocket; District seven of the town of Cumberland; District eight of the towns of Pawtucket and Lincoln; District nine of the town of East Providence; District ten of the city of Providence. For the County of Bristol, two Examiners, one in each of the following districts, viz.: District one composed of the towns of Barrington and Warren, and District two of the town of Bristol. For the County of Newport four Examiners, one in each of the two first districts and two in District three, viz.: District one composed of the towns of Tiverton and Little Compton; District two of the town of New Shoreham; District three of the city of Newport and the towns of Portsmouth, Middletown, and Jamestown.

SEC. 3. If either of the Medical Examiners shall, at any time, from any cause, be unable to perform the duties of his said office, or shall be deemed by the Attorney-General for any cause disqualified therefor, a Medical Examiner from an adjoining district may be called upon to perform them.

SEC. 4. Every Medical Examiner shall hold his office for a term of six years, and until another is appointed and qualified to act in his place, unless sooner removed by the appointment of some other person to fill his place.

SEC. 5. Every Medical Examiner shall within thirty days after his appointment, and before entering upon the duties of his office, give bond with surety to, and to the satisfaction of, the General Treasurer in the sum of one thousand dollars, for the faithful performance of his duties.

SEC. 6. If the condition of any such bond be broken, to the injury of any person, actions may be brought upon such bond as upon the official bonds of sheriffs.

SEC. 7. Medical Examiners shall make examinations as hereinafter provided, upon bodies of such persons only as are supposed to have come to their death by violence.

SEC. 8. When a Medical Examiner has notice that there has been found, or is lying within his district the body of a person who is supposed to have come to his death by violence, he shall forthwith repair to the place where such body lies, and take charge of the same, and if, on view thereof and personal inquiry into the cause and manner of the death, he deems a further examination necessary, he shall, upon being thereto authorized, in writing, by the Attorney-General, or by the Mayor of the City or President of the Town Council of the town where such body lies, make an autopsy in the presence of two or more discreet persons as witnesses, and shall then and there reduce, or cause to be reduced, to writing, every fact and circumstance tending to show the condition of the body and the cause and manner of death, together with the names and addresses of said witnesses, which record he shall subscribe. Before making such autopsy he shall call the attention of the witnesses to the position and appearance of the body.

SEC. 9. Should the Medical Examiner deem it advisable to have present a physician as one of the witnesses, as aforesaid, such physician shall also subscribe the record made by the Medical Examiner, and for such service he shall receive a compensation of five dollars.

SEC. 10. Town councils shall elect a suitable person to act as coroner for their respective towns, to hold his office for three years and until another is elected and qualified to act in his place, unless sooner removed by the election of some other person to fill his place.

SEC. 11. The coroners so elected shall have exclusive jurisdiction as coroners in their respective towns.

SEC. 12. The coronor shall appoint in writing, under his hand and seal, one or more discreet persons to act as his deputy, in case of his absence or inability to act, who shall have all the powers of a coroner, and be subject to like pains and penalties for malfeasance in office; and the coroner shall file a copy of the appointment in the town clerk's office of his town.

SEC. 13. The coroner may suspend or discharge a deputy. The suspension or discharge of a deputy shall be in writing, addressed to the deputy; and the coroner shall forthwith file a duplicate thereof in the town clerk's office of his town.

SEC. 14. Every coroner and deputy coroner shall, before entering upon the duties of his office, take the engagement prescribed in section 4 of chapter 23 of the Public Statutes.

SEC. 15. Whenever the coroner has notice that there is in his town any person who has been injured by the criminal act, omission or carelessness of another, and that said person believes that his death is impending from any such injury, said coroner may take the statement of such person concerning the manner in which and the person by whom such injury was inflicted, and the statement so taken shall be reduced to writing, and if practicable, in the presence of the injured person.

SEC. 16. If, upon such view, personal inquiry, or autopsy, the medical examiner is of the opinion that the death was caused by the act or neglect of some person other than the deceased, he shall at once notify the Attorney-General and coroner of the town where the body was found, or in which it lies, and shall file a duly attested copy of the record of his autopsy or view with the said coroner and a like copy with the Attorney-General; and shall, in all cases, certify to the officer having the custody of the records of deaths in the town in which the deceased came to his death, the name and residence of the person deceased, if known, or, when the name and residence cannot be ascertained, a description of the deceased, as full as possibly may be, for identification, together with the cause and manner by and in which he came to his death.

SEC. 17. The coroner shall thereupon hold an inquest, which may be private, in which case any or all persons, other than those required to be present by the provisions of this act, may be excluded from the place where such inquest is held; and such coroner may also direct the witnesses to be kept separate so that they cannot converse with each other until they have been examined. The Attorney-General, or some person designated by him, may attend the inquest and examine all witnesses: and the coroner shall cause the testimony to be reduced to writing, and signed by the witnesses. The Attorney-General may, if he deem it necessary or expedient, direct an inquest to be held in the case of any casualty from which the death of a person results.

SEC. 18. The coroner may issue summons for witnesses, returnable before him. The persons served with such process shall be allowed the same fees, their attendance may be enforced in the same manner, and they shall be subject to the same penalties as if served with a summons in behalf of the State in a criminal prosecution pending before a justice court.

SEC. 19. The coroner shall, after hearing the testimony, draw up and sign a report, in which he shall find and certify when, where and by what means the person deceased came to his death; his name, if known, and all material circumstances attending his death; and if it appears that his death resulted wholly or in part from the unlawful act of any other

person he shall further state the name of such person, if known to him, and he shall file such report, and the testimony by him taken, together with a copy of the record of the autopsy or view, in the office of the Clerk of the Court wherein an indictment for the offence may be found.

SEC. 20. The coroner shall bind such witnesses as he deems necessary, or as the Attorney General may designate, by recognizance in a reasonable sum, with sufficient surety, to personally appear at such time as the coronor may designate, at the Justice Court of the town wherein the inquest is held, and not depart therefrom until discharged by said Court; and if any such witness shall refuse to recognize as aforesaid, the coroner shall commit such witness to the jail in the same county, there to remain until he shall so recognize or be otherwise discharged according to law.

SEC. 21. If the report of the coroner shall state that the death was caused by the unlawful act or by the gross carelessness of any other person, and by whose act the same was committed, he shall immediately make a complaint thereof againt the person accused, in writing and on oath, to the Trial Justice or Clerk of a Justice Court in the town where the offence was committed, to the intent that the person killing or being in any way criminally instrumental to the death, may be apprehended; but nothing herein contained shall be so construed as to prevent complaint being made at any time before the finding of the report. And the coroner shall forthwith, in writing, notify the Attorney-General of the complaint aforesaid, that he may appear by himself or some person appointed by him, at the examination, and prosecute the complaint in behalf of the State.

SEC. 22. If a medical examiner reports that a death was not caused by the act or neglect of some person other than the deceased, and the Attorney-General is of a contrary opinion, the Attorney-General may, notwithstanding such report, direct an inquest to be held in accordance with the provisions of this act, at which inquest he, or some other person designated by him, shall examine all the witnesses.

SEC. 23. The medical examiner may, if he deem it necessary, employ a chemist to aid in the examination of the body, or of substances supposed to have caused or contributed to the death, and such chemist shall be entitled to such compensation for his services as the medical examiner certifies to be just and reasonable, the same being audited and allowed in the manner hereinafter provided.

SEC. 24. When a medical examiner views or makes an examination of the dead body of a stranger, he shall cause the body to be decently buried, and if he certifies that he has made careful inquiry, and that to the best of his knowledge and belief the person found dead is a stranger, having no settlement in any town of the State, his fees, with the actual expense of burial, shall be paid from the general treasury. In all other cases the expense of the burial shall be first paid by the town wherein the body is found, and such town may recover the money so paid from the town where such person last had a settlement. Provided, however, that the General Treasurer or any town ultimately paying any such burial expenses shall have the right to recover such burial expenses from the estate of the deceased person.

SEC. 25. When services are rendered in bringing to land the dead body of a person found in any of the harbors, rivers or waters of the State, the Medical Examiner may allow such compensation for such services as he deems reasonable; but this provision shall not entitle any person to compensation for services rendered in searching for a dead body.

SEC. 26. In all cases arising under the provisions of this act, the Medical Examiner shall take charge of any money or other personal property of the deceased, found upon or near the body, and shall deliver the same to the person entitled to its custody or possession, or if not claimed by such person within sixty days, then to an administrator, to be administered upon according to law.

SEC. 27. A Medical Examiner who fraudulently neglects or refuses to deliver any such property within three days after demand upon him therefor, shall be imprisoned not exceeding two years or be fined not exceeding five hundred dollars.

SEC. 28. The fees of coroners shall, for the services specified in this act, be as follows, namely: For receiving and filing a duly attested copy of the record of an autopsy, fifty cents; for every page of two hundred words of written testimony, thirty cents; for each day's attendance in holding the inquest, five dollars; for the recognizance of witnesses, thirty-five cents; and for drawing up and filing a report in court, five dollars. Said fees having been audited by the State Auditor upon certificate of the Attorney General, shall be paid by the General Treasurer.

SEC. 29. Each medical examiner shall receive fees as follows: For a view without an autopsy, four dollars; for a view and an autopsy, thirty dollars; and for travel at the rate of ten cents a mile to the place of view. He shall also have power, in case of an autopsy, to employ a clerk, at an expense not exceeding three dollars per day for each day's actual service.

SEC. 30. Every medical examiner shall return an account of the expenses of each view or autopsy, including his fees, to the State Auditor, and shall annex to his return the written authority under which the autopsy was made. The State Auditor shall audit such account and certify to the General Treasurer what items in such account are deemed just and reasonable, and such items shall be paid by said treasurer to the persons entitled to receive the same.

SEC. 31. Chapter 250 of the Public Statutes, entitled "Of Coroners and their Inquests," and all acts and parts of acts inconsistent herewith, are hereby repealed.

SEC. 32. This act shall take effect on the first day of July, A. D. 1884, provided that so much thereof as relates to the appointment and qualification of medical examiners shall take effect immediately.

I certify the foregoing to be true copies.

[Witness.] JOSHUA M. ADDEMAN,
Secretary of State.

BOOK REVIEWS.

The Kingdoms of Nature, or Life and Organization from the Elements to Man. By Ransom Dexter A.M., MD., LL.D. Published by the Tipton Publishing Co., Chicago.

The object of this book, the author states, is to present intelligibly to the average reader the leading facts of Natural History in the most natural order possible, "so that he who runs may read something of the laws or rules of action established by the Creator for the government and conservation of natural objects throughout the wide domain of animal existence."

The facts presented and the order of their presentation may be briefly described as follows:

In the first chapter the author asks "what is life," and describes in a general way the prominent and most universal facts of physiology. The Vegetable Kingdom is described, beginning with the lowest forms of life, and extending chapter by chapter to the highest. In the same way the Animal Ringdom is reviewed. Not only are the amatomical characteristics given but also many of the physiological peculiarities and habits common to whole groups.

That which even the most casual observer of the book will notice with pleasure and commendation is the handsome appearance of the volume. It is well bound, printed on good paper and finely illustrated with nearly four hundred engravings which are well selected. Two of the full page cuts are colored. In addition to the customary table of contents and index there is a glossary of technical words. The work is highly creditable to both author and publisher, and deserving an extensive patronage from the reading public.

MISCELLANEOUS.

We cheerfully call attention to the following circular, and commend the proposition as a fitting mode of commemorating the honored dead.—[Ed.]

The S. D. Gross Professorship of Pathological Anatomy.—American surgery has had no better exponent than Samuel D. Gross; none so honored abroad and at home by institutions of learning; none more revered by his associates and his pupils. His long and brilliant professional career deserves the perpetuation of his name in close association with medical tuition.

In furtherance of this object, the Alumni Association of Jefferson Medical College has inaugurated a movement to secure, in some medical school, the endowment of a Memorial Professorship, to be designated The S. D. Gross Professorship of Pathological Anatomy.

The profession at large, the personal friends of the late Professor Gross, and others interested in elevating the standard of medical education, are cordially invited by the undersigned to participate in this graceful recognition of conduct and service which have largely helped to establish the high standard of excellence to which surgery has attained throughout the United States, and served so much to dignify the repute of American Medicine.

Contributions may be sent to Dr. R. I. Dunglison, Treasurer, lock box 1274, Philadelphia, P. O., and will be acknowledged in the columns of the "*Medical News*" of Philadelphia.

D. Hayes Agnew, M. D., *Chairman.*

J. M. Barton, M. D., *Secretary,*

1344 *Spruce Street, Phila.*

OFFICIAL NOTICE.

Annual Dues from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the Journal of the Association for one year.

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Back Volumes of the Transactions may be procured, at reduced rates, by addressing the Treasurer.

The Index to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

Richard J. Dunglison, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

List of Official Changes in the Medical Corps of the Navy, for the Week Ending June 28, 1884.

Surgeon J. S. Knight, placed on retired list.

P. A. Surgeon R. Whiting, detached from U. S. S. "Vermont," ordered to Marine Rendezvous, N. Y.

Surgeon H. J. Babin, detached from Marine Rendezvous, N. Y., ordered to U. S. S. "Minnesota."

Surgeon H. M. Wells, ordered for examination preliminary to promotion.

P. A. Surgeon G. P. Lumsden, detached from U. S. S. "Pensacola," and placed on waiting orders.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department United States Army, from June 21, 1884, to June 27, 1884.

Magruder, D. L., Lieut.-Colonel and Surgeon, granted leave of absence for one month. (Par. 7, S. O. 143, A. G. O., June 20, 1884.)

Clements, Bennett A., Major and Surgeon, ordered to relieve Major Jos. P. Wright, Surgeon of his duties as attending surgeon at the Leavenworth Military Prison, Fort Leavenworth, Kan. Major Wright on being relieved, ordered to report to the Commanding-General, Department of Texas, for assignment to duty. (Par. 7, S. O. 144, A. G. O., June 21, 1884.

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ORIGINAL ARTICLES.

THE TREATMENT OF DIABETES MELLITUS.

BY AUSTIN FLINT, JR., M.D., PROFESSOR OF PHYSIOLOGY IN THE BELLEVUE HOSPITAL MEDICAL COLLEGE.

Read in the Section on Practice of Medicine and Materia Medica, of Am. Med. Association, May, 1884.

MR. CHAIRMAN AND GENTLEMEN:—It would not be possible, within the limits to which this paper is necessarily restricted, to discuss satisfactorily the pathology or even the clinical history of diabetes mellitus, although the disease in question is one of the most interesting, as well as obscure affections which the physician is called upon to treat. While the study of diabetes and its attendant disorders of general nutrition presents difficulties, as regards questions of causation and pathology, that seem almost insurmountable, when attention is once directed to the simple problem of the presence of sugar in the urine, this condition is now easily and certainly recognizable. It is probably true that sugar exists in the urine of a certain number of persons, unattended with symptoms, so that it is detected only by accident or may never be revealed, such persons having no apparent occasion to seek medical advice. In an experience in life insurance examinations extending through a period of nearly thirteen years, I have found a small quantity of sugar in the urine of applicants who supposed themselves to be perfectly healthy; but within the time mentioned, only five such cases have come under my observation. Three of these applicants are now living and are presumably in good health, the sugar in the urine having been noted from eight to twelve years ago; one case was lost sight of, and one applicant is reported to have died of hæmoptysis nine months after the examination of the urine. During the time mentioned; viz., twelve years and nine months, I examined 1884 persons who supposed themselves to be in good health, and nearly always made examinations of the urine. All of the applicants, with one or two exceptions, were males. The proportion, therefore, of apparently healthy persons in whose urine I have found sugar is very small (1 in 377); but even this shows that sugar may be present in the urine, either as a transient or an insignificant condition or existing without any of the general symptoms of diabetes.

In the great proportion of cases of diabetes that come under observation, attention is directed to the condition of the urine by certain general symptoms; such as excessive thirst, persistent polyuria, a sensation of dryness of the mouth and fauces, fatigue after moderate muscular exertion, or some slight affection of the external genitals. In a case of diabetes that I have had under treatment for nearly four years, now under observation, the patient first consulted a physician for herpes progenitalis, which led to an examination of the urine. In females, persistent pruritus of the vulva is often the first circumstance pointing to the possible existence of diabetes. In several cases, I have detected sugar in the urine when pruritus vulvæ was the only trouble complained of by patients. So constant is this symptom, that diabetes should always be suspected when the pruritus persists without any apparent cause and resists ordinary measures of treatment. The pruritus is seldom absent when the proportion of sugar in the urine is considerable.

Detection of Sugar in the Urine.—As far as purely clinical examination of the urine is concerned, the great desideratum is a simple test, easy and rapid in its application, upon which one can rely with absolute confidence. I shall pass over, without discussion or even mention, the different tests employed for the detection of sugar, except the one known as Fehling's. When the Fehling's liquid is properly prepared and carefully used, there can be no error in the results. If a quantity of this test, however, be made and kept for some time, it is liable to change so as to become more or less unreliable. This want of stability in the test-liquid has long been recognized by those accustomed to urinary examinations; and a few years ago I prepared three separate liquids, which I mixed in certain proportions for use as required. Even this did not prove to be entirely satisfactory. Within the last year, two separate liquids have been prepared by Dr. E. R. Squibb, and are kept by him for sale, in which form, the test seems to leave nothing to be desired in the qualities of accuracy and ease of application. The test, as it is now prepared by Dr. Squibb, is simply perfect; but so much depends upon its proper use, that I shall venture to detain the "Section" with an account of its application and the necessary precautions to be adopted. These precautions are simple and demand no special skill; but they often become very important, especially in determining with certainty the absence of sugar.

The two test-liquids are prepared by Dr. Squibb according to the following formulæ:

For the Solution of Cupric Sulphate.—Use purified sulphate of copper, in granular crystals, air-dried. Weigh 277 grains (17.32 grammes) of the salt and dissolve it in about 4 fluidounces (120 c.c.) of distilled water, adding about 4 minims (¼ c.c.) of pure sulphuric acid. Add distilled water to this solution to make 8½ fluidounces. (260 c.c.)

For the Solution of Alkaline Tartrates.—Weigh 2 ounces, 391 grains (87.5 grammes) of re-crystallized sodio-potassic tartrate, or Rochelle salt, and dissolve it in about 6 fluidounces (175 c.c.) of distilled water. Filter the solution, if necessary, and add to it a clear solution of 386 grains (25 grammes) of caustic soda in about 1¾ fluidounces (50 c.c.) of distilled water. Add distilled water to this solution to make 8½ fluidounces (260 c.c.)

These two solutions are to be kept in separate bottles for use. If they be made with accuracy and mixed together in equal proportions, 200 grains of the mixture will be decolorized by exactly one grain of sugar, or each cubic centimetre of the mixture will be decolorized by 0.005 of a gramme of sugar. The liquids can therefore be employed for quantitative estimates, although I shall describe the use of the test simply for determining the fact of the presence or absence of sugar.

For use in qualitative analysis, the two liquids may be roughly mixed in about equal proportions in a test-tube, or they may be measured accurately and diluted with about an equal volume of distilled water. The latter process should be resorted to in all delicate analyses.

For ordinary use the following process may be employed:

Mix in a test-tube equal volumes of the two liquids so that the mixture will extend in the tube to the length of about an inch.

Bring the mixture to the boiling point and then add to the boiling test a quantity of urine equal to that of the test.

Bring the mixture of the test-liquid and urine to the boiling point and then allow it to cool.

If no distinct and opaque reddish or yellowish precipitate be present when the mixture of test and urine has become cool after the second boiling, it is absolutely certain that no sugar is present.

All these precautions are essential; and I have repeatedly examined specimens of urine in which the characteristic precipitate due to the presence of sugar did not occur until one or two minutes had elapsed after the second boiling.

In very delicate testing, take a definite quantity of the copper-solution, add an equal quantity of distilled water, add then of the solution of alkaline tartrates a quantity equal to the quantity of the copper-solution, and add finally distilled water in the same quantity. When this mixture is boiled, if the test be not absolutely perfect, there will be a precipitate before the urine is added. The mixture, if perfect, may be used in the same way as the simple undiluted mixture of the two solutions.

When sugar is present in the urine, an opaque yellowish or reddish precipitate appears at some time during the process, the promptness of its appearance and its quantity being in direct proportion to the quantity of sugar.

It is often important to be able to determine, at least approximatively, the quantity of sugar discharged in twenty-four hours or its proportion per fluidounce. Using the volumetric process, this estimate requires some practice and occupies from twenty to thirty minutes; but the "differential density method" recommended by Roberts, is very simple and is sufficiently accurate for ordinary purposes. With a little practice, indeed, it may be employed by intelligent patients.

Two specimens of diabetic urine are taken, about four ounces of each, one for comparison and the other for analysis. To one is added a lump of German yeast, about the size of a filbert, in a bottle with a cork nicked to allow the escape of gas; and the other specimen is placed in a similar bottle tightly corked. The bottles are then put aside in a warm place, as the mantel-piece in winter or in the sun in summer. In the course of twenty-four hours, fermentation will have been completed in the specimen to which yeast has been added. If the specific gravity of the two specimens be then compared, the fermented specimen will be found much the lighter, from loss of the sugar which has been decomposed into alcohol and carbonic acid. The difference in the density of the two specimens, expressed in degrees of the urinometer, will represent the number of grains of sugar per fluidounce in the urine. For example, if the specific gravity of the fermented specimen be 1010, and the specific gravity of the unfermented specimen, 1040, the urine contains thirty grains of sugar per fluidounce. In this process, it is essential to compare the density of the two specimens at the same temperature. If German yeast cannot be obtained readily, about a teaspoonful of ordinary baker's or brewer's yeast may be used.

Relations of the Specific Gravity of Urine to the Proportion of Sugar.—It has long been recognized that the specific gravity of the urine bears no definite and constant relation to the proportion of sugar in cases of diabetes. In a case that came under my observation in December, 1883 and has been under treatment until the time of writing (April, 1884) on Dec. 29, 1883, the specific gravity was 1038, with 28.4 grains of sugar per fluidounce. The next day, the specific gravity was 1036 and the proportion of sugar was nine grains per fluidounce. In another very interesting case now under treatment, I found four grains of sugar per fluidounce, the urine having a specific gravity of only 1011½. These remarkable variations in the specific gravity, occurring without any relation to the quantity of sugar, are generally dependent upon the proportion of urea, the absolute quantity of which is often very largely increased in cases of diabetes. I have often found crystals of uric acid as a persistent condition in diabetic urine, sometimes associated with a deposit of oxalate of lime.

The time allotted to me does not admit of a discussion of the possible relations of the nutritive conditions connected with diabetes to the excessive elimination of urea or the frequent presence of crystals of uric acid; but it is very important to remem-

ber that urine of a comparatively low specific gravity may contain sugar. Within a week, in another case in which the urine is examined every three or four days, I found a marked sugar-reaction in a specimen of urine with a specific gravity of 1010. I have also repeatedly found sugar in urine of a specific gravity of about 1020, the quantity of urine in twenty-four hours being normal. The fact, then, that the quantity and specific gravity of the urine are normal does not in itself exclude sugar; although, in most cases of diabetes, the quantity of urine is increased and its specific gravity is notably high. In a case of diabetes very elaborately reported by Pavy, sugar was found in the urine when the specific gravity of the specimens was, on different occasions, 1010, 1011, 1012, and 1013.[1] In cases in which diabetes is suspected, the physician is not justified in excluding the disease when he finds no increase in the quantity of urine and a normal specific gravity; and the facts just mentioned show that, in all cases of this kind, the urine should be carefully tested for sugar.

What constitutes Diabetes Mellitus?—A patient with abnormal thirst, dryness of the mouth, suffering from fatigue following slight muscular exertion, progressively losing strength and weight, and passing an abnormally large quantity of urine of high specific gravity and containing sugar, has the disease known as diabetes mellitus; but the various symptoms just enumerated may exist in greater or less degree or some of them may be absent. In addition to these symptoms, others may exist; such as, abnormal dryness of the skin, deficient perspiration on exercise or in warm weather, pruritus of the vulva, a tendency to furuncles, unusual liability to "take cold," reduction in the general temperature of the body, an excessive appetite, failure of the generative functions, etc., but these are not necessarily present in cases of diabetes.

On the other hand, none of the general symptoms that I have mentioned may be observed; the urine may be normal as regards quantity and specific gravity; but still sugar may constantly exist in small quantity. In such instances, which are not very infrequently observed, the constant, necessary, and invariable symptom of diabetes is present; namely, glycosuria. Strictly speaking, perhaps, patients with no general symptoms, with no increase in the quantity of urine, and with urine of normal specific gravity, may be said to be affected with glycosuria, but not to have diabetes. In the great majority of cases, however, unless the glycosuria be transient and dependent upon some recognizable or temporary cause, certain of the general symptoms of diabetes will sooner or later become developed, unless the glycosuria be removed by treatment. Still, even without treatment, persons may live in what seems to be perfect health for years, constantly passing considerable quantities of sugar. I can now call to mind three cases of this kind; and several cases, in which I have found sugar in the urine without any other diabetic symptoms, have passed from under my observation.

I shall have little to say concerning the etiology and pathology of diabetes. The brilliant physiological experiments, which began with the discovery of the sugar-producing function of the liver by Claude Bernard, in 1848, have failed, in a great measure, to fulfil the expectation that they would lead to a definite comprehension of the pathology of diabetes. I believe it to be true that the liver is a sugar-producing organ. The experiments of Pavy, in which he showed that the liver-substance does not actually contain sugar during life were, in my opinion, harmonized with those of Bernard, by experiments made by me in 1869.[1] In these experiments, I found no sugar in an extract of the liver taken from a living dog and put into boiling water in ten seconds, while sugar was present in blood taken from the hepatic veins. I am convinced that the liver is constantly forming sugar during life, but that this sugar, as fast as it is produced, is washed out of the sugar-producing organ by the blood-current. Experiments have shown, also, that the sugar contained in the food, as well as that resulting from the digestion of starch, is normally destroyed in the organism. That the sugar-forming function of the liver may become exaggerated beyond the power of the organism to destroy the excess thus produced was demonstrated by the remarkable experiments of Bernard, in which he induced temporary diabetes in animals by mechanical irritation of the floor of the fourth ventricle, by stimulating the pneumogastric nerves, or by introducing irritating vapors into the lungs; but, although cases of traumatic diabetes occur in the human subject, they are exceedingly rare. No such case has as yet come under my observation.

I do not propose, at this time at least, to offer any theory with regard to the causation or pathology of diabetes, the cause of death in the so-called diabetic coma, or the supposed development in certain cases of acetonæmia. The discussion of these points has, up to the present time, been very unsatisfactory. We all know that patients presenting, in a well-marked degree, certain characteristic symptoms, in addition to glycosuria, are affected with a very grave disease, the pathology of which is imperfectly understood. The sugar resulting from digestion is in great part discharged in the urine. The nutritive processes are seriously disturbed. The power of resistance to other diseases is impaired. What is remarkable and quite interesting, in its relations to our ideas of the production of animal heat, the failure to consume the hydrocarbons seriously affects the power of resistance to cold, and the general temperature of the body is habitually 95° or 96° Fahr., instead of about 98½°. This latter point I state upon the authority of many writers; and in a case now under treatment, the temperature in the axilla has constantly been about 96½°. As the patient improved, the temperature was increased to a fraction over 97°, but it has not yet reached the normal standard.

Being brought, then, face to face with a disease, very obscure in its pathology, and not infrequent in its occurrence, the practical question, to which I intended to devote the main part of this paper, is, how

[1] Pavy, *Nature and Treatment of Diabetes*, London, 1869, p. 288, *et seq.*

[1] Flint, Jr. *Experiments undertaken for the Purpose of reconciling some of the Discordant Observations upon the Glycogenic Function of the Liver.—New York Medical Journal*, 1869, vol. viii, p. 373, *et seq.*

far it is amenable to treatment. To this question I shall devote what remains of the time at my disposal.

Treatment.—In a course of lectures by Cantani, delivered at the clinical hospital of the University of Naples, in the spring of 1872, there occurs the following statement, italicised by the author:

"*Diabetes has become to-day a disease easily and certainly curable, provided that the treatment* (*cure*) *be not begun too late.*"[1]

The cases which Cantani details in support of this rather startling statement show certainly the most remarkable effects of treatment. Judging from the account of these cases, the general proposition that diabetes is a disease, in the main easily and certainly curable, is not too decided and absolute. Since I have been engaged in treating cases of this disease, my experience, though not extending over many years, has led me to the conviction that the claim made by Cantani is not extravagant.

In the great majority of cases in which patients will submit to certain measures of treatment as soon as it is established that they are suffering from diabetes, or as soon as glycosuria is recognized, it is possible to effect either a cure of the disease or a removal of most of the characteristic symptoms, with the exception, perhaps, of the occasional appearance of a small quantity of sugar in the urine.

Time does not permit me to discuss fully the treatment recommended by different writers. Cantani relies mainly upon dietetic measures, although he attaches considerable importance to the exhibition of lactic acid and the alkaline lactates. Of course the treatment by eliminating sugar and starch from the diet is by no means novel. Dating from the time of Rollo, it has had the earnest support of Bouchardat, Pavy, Seegen, and many others. I desire to state at the outset, that the main and almost the sole reliance of the physician should be upon diet; and that the suppression of starch and sugar should be practically absolute. Bearing this fact constantly in mind, in considering the different measures of treatment, I shall divide them into dietetic, general, and medicinal.

Dietetic Treatment.—In 1869, a patient was sent to me from Omaha, Neb., whom I found to be suffering from many of the distressing symptoms of diabetes.

On Nov. 20, 1869, he passed 224 fluidounces of urine in the 24 hours, with a specific gravity of 1,035. The quantity of sugar passed in the 24 hours was 18 ounces and 30 grains, and the quantity of urea was 624 grains. I recommended a diet-table by no means as rigid as the one I now employ, and he left for home. For several years I heard from this patient, either personally or through his physician in Omaha, from time to time, and he was reported as apparently well, but occasionally passing a small quantity of sugar. He continued the diet more or less faithfully for two or three years, but took a little bread. About five years after, I was accosted in the street by this patient, who reported himself as feeling perfectly well and giving but little attention to his diet. At this time I did not have an opportunity of examining the urine. The patient has since died, and I heard from his widow that this occurred in August, 1881, his death being immediately due to inflammation of the bowels after a few days' illness. "The diabetes was much improved and troubled him very little."

This case, during the time when I was constantly receiving favorable reports, seemed to me to be quite remarkable; and in 1880, having frequent occasion to recommend a diet for diabetics, I carefully compiled an anti-diabetic diet-table, which I have since used constantly in cases that have come under my observation, and which I shall present as an appendix to this paper. In preparing this table, my object has been to secure a diet sufficiently nutritious but free from starch and sugar, using as a basis the admirable list given by Bouchardat;[1] and I have endeavored to adapt the articles and their preparation to the customs of our own country, adding to it, when possible, in order to secure the greatest available variety of food. Selecting, however, every dish known in the culinary art, without reference to the trouble or expense of its preparation, a rigid diet is by no means easy of enforcement. Patients at first have an intense craving for bread; and this desire is so nearly universal that almost all writers on diabetes suggest some substitute for this important article of food. I do not hesitate to say, however, without specifying any one of the so-called anti-diabetic breads and flours as especially bad, that all the articles of this kind in our markets are absolutely unreliable and most of them fraudulent. I have analyzed, or caused to be analyzed, nearly all of the so-called bran-flours, and gluten-flours, and have invariably found large quantities of starch. Two specimens said to be free from starch, which were analyzed with great care by a competent chemist, were found to contain a greater proportion of this principle than exists in ordinary wheat-flour. Most of the so-called diabetic breads are pasty, heavy, and become extremely distasteful. A patient now under occasional observation, having procured a new bread which was so agreeable to the taste that he took it freely and with relish, imagined that he had found at last an article which would be regarded by diabetics as the greatest boon. This bread was made of flour which contained about 80 per cent. of starch.[2] The effects of this fraud upon the patient were quite serious. His health had become nearly restored and the sugar had disappeared from the urine. Under the use of the bread, the sugar returned, and it was several weeks before it disappeared again under a strict diet. In the rigid dietetic treatment, bread should be absolutely interdicted, or, in case patients should refuse to submit to a strict diet, a small quantity of crust of bread taken with an abundance of butter may be allowed under protest.[3]

A rigid diet, without bread, should be continued

[1] CANTANI, *Le diabète sucré et son traitement diététique*, Paris, 1876, p. 386.

[1] BOUCHARDAT, *De la glycosurie ou diabète sucré*, Paris, 1875, p. clxxxvi.

[2] Ordinary wheaten flour contains about 70 per cent. of starchy matters.

[3] Since this article has been in print, I have seen a bread made by George V. Hecker & Co., 205 Cherry street, New York City, made of wheaten flour said to contain only 5 per cent. of starch. This bread is light and agreeable, but it requires great care in its preparation. A specimen of the bread was examined by Prof. G. A. Doremus, who found a little more than one per cent. of starch.

until the sugar has disappeared from the urine and all the diabetic symptoms have been removed. Although many diabetics rebel under this regimen, and the execution of this measure demands, on their part, much self-denial and fortitude, patients may be encouraged to persevere, by the statement that the craving for saccharine and starchy articles is likely to diminish and may almost disappear after a few weeks. I have now under observation and treatment several patients who have actually lost all desire for most of the interdicted articles of food.

In cases in which the treatment is followed by an apparent cure, sugar disappearing from the urine, a gradual return to the normal diet should be begun about two months after the glycosuria has ceased; but it is of the greatest importance, during this part of the treatment, to keep patients, if possible, under constant observation, examining the urine at least once in five or six days. When the sugar disappears, patients may regard themselves as permanently cured, and no general symptoms present themselves for some time after glycosuria has returned under a mixed diet. Several unfortunate examples of this have come under my observation.

General Treatment.—Measures of general treatment are to be directed mainly to promoting the proper action of the skin, which is often harsh and abnormally dry, and to general muscular exercise. Systematic rubbing, as practiced by massage, and Turkish or Russian baths once a week, if they be not contra-indicated by some complicating conditions, are useful. A reasonable restriction in the taking of liquids is quite important in diminishing the quantity of urine. Under the dietetic treatment the excessive thirst is almost always relieved; but when this persists, it may often be temporarily met, as far as dryness of the mouth is concerned, by taking small pieces of ice from time to time instead of drinking water. I do not know that any reliance is to be placed upon the use of the various mineral waters that are said to exert a curative influence over the disease in question. Alcoholic stimulants are to be avoided. I have seen several cases of diabetes in which the disease seemed to be attributable to the abuse of alcohol, especially the habitual and excessive drinking of champagne. In certain cases, some kind of alcoholic beverage seems to be necessary to maintain the vital powers. For this purpose, a fairly good, sound claret has seemed to me to be the best form in which alcohol may be taken. Spirits should be interdicted or given very sparingly, and not more than a pint of claret should be taken daily.

Patients suffering from diabetes lose, to a certain extent, their capacity for sustained mental effort. They should be cautioned, therefore, against excessive intellectual work. Mental anxiety and "worry" over business or other affairs exert a very unfavorable influence on the progress of the disease. In some cases apparently cured, I have noted a return of the glycosuria, which seemed to be fairly attributable to mental causes. The insomnia rarely demands the use of narcotics and is usually relieved with the other symptoms by the anti-diabetic diet.

The various minor complications that are liable to occur can usually be overcome by appropriate treatment. The occurrence of boils is very common and they are likely to be persistent and annoying. When the tendency to boils is very marked, the sulphide of calcium is useful, although this agent does not seem to exert a curative influence over the diabetes itself. The sulphide of calcium has been recommended very highly as a remedy controlling the glycosuria; but it is often disagreeable to patients and disturbs digestion. In a few instances in which I have employed it for a considerable period, it has not seemed to affect the discharge of sugar, and I regard it as useful only to combat the furuncular tendency. It is dangerous to rely upon drugs to any extent in the treatment of this disease. Patients willingly put faith in remedies rather than in a rigid diet; but, after all, diet is the main and almost the only reliance in treatment.

A very important, and perhaps the most important, measure of general treatment is systematic muscular exercise, not carried to the extent of producing excessive fatigue. This may be taken in the form of gymnastics, or of out-door exercise, such as riding or athletic sports; but patients should always be cautioned to avoid "taking cold." If a patient suffering from diabetes can be made to develop his muscular strength by moderate and systematic exercise, not too prolonged, and followed by a proper and not excessive sense of fatigue and some perspiration, with a good reaction after bathing and rubbing, much will be gained in the way of treatment. This is strongly recommended by all writers upon diabetes.

The diminished power of resistance to cold which exists nearly always in diabetics renders it necessary to enjoin great care in avoiding exposure to the vicissitudes of the weather, and the constant protection of the body by warm clothing, especially flannels next the skin.

Medicinal Treatment. There is no remedy that exerts a curative influence over diabetes in the absence of proper dietetic measures. Opium, the bromides, sulphide of calcium, various mineral waters, and other medicinal agents that have been recommended from time to time, have all proved very unsatisfactory in practice. Of course it is difficult to estimate the value of drugs in this as in many other diseases, particularly as the physician is not justified, in my opinion, in neglecting to enforce a rigid diet which, in itself, in the great majority of cases, exerts a most decided influence over the glycosuria and the general symptoms. On theoretical grounds, Cantani recommends lactic acid, taken in the form of a "lemonade," in small quantities throughout the day. The formula for this mixture is the following:

Pure lactic acid.....℥iss to ℥v.
Aromatic water.....℥v to ℥j.
Water.....Ojj.

This remedy is regarded by Cantani as useful in many cases but not essential. I have little experience in its employment.

Keeping in mind the small reliance to be placed in the efficacy of drugs unconjoined with dietetic measures, I must bear testimony to the apparent advantage to be derived from the use of the arsenite of

bromine, recently proposed by Clemens. While I have not felt justified in using this remedy to the exclusion of the anti-diabetic diet in treatment, for the reason that the bad effects of an unrestricted diet frequently persist for some time, I have noted very marked effects from Clemens's solution in controlling the discharge of sugar and some of the distressing symptoms, particularly the excessive thirst; so that, aside from simple measures to relieve sleeplessness, constipation, or other intercurrent difficulties, I have lately been in the habit of prescribing, in addition to the diet, three drops of Clemens's solution, three times daily, in a wine-glass of water, after each meal, gradually increasing the dose to five drops. The following is the formula for this remedy, which I have had prepared by Mr. William Neergaard, 1183 Broadway, New York City, and which may be written for under the name of "Clemens's Solution of Arsenite of Bromine."

"Liquor brom-arsen consists simply of a chemical union of arsenious acid and bromine, dissolved in water and glycerine, in such a manner that two drops represent the twenty-fourth part of a grain of arsenite of bromine."[1]

In a case of diabetes of more than five years' standing, now under treatment, the patient has been taking Clemens's solution constantly, with the exception of a single week, from Dec. 27, 1882, to April 2, 1884, more than fifteen months, without any unpleasant effects. I began with a dose of two drops, three times daily, gradually increased to five drops. On May 13, 1883, the urine having been free from sugar, with the exception of a trace on two or three occasions, for thirteen weeks, I stopped the arsenite of bromine for one week, the anti-diabetic diet being continued. At the end of the week, sugar was found in large quantity in the urine. The use of the arsenite of bromine was then resumed. At the end of the first week, the sugar still existed in small quantity. At the end of the second week, the sugar had disappeared and there was no return of glycosuria for six weeks. The patient then left the city and committed many indiscretions in diet. Seven weeks later, I examined a specimen of urine and found it loaded with sugar, with a specific gravity of 1,030. While absent from New York, the patient had indulged in peas, egg-plant, stuffed tomatoes, green corn, ice-cream, charlotte russe, peaches, raspberries, blackberries, and melons. On September 20, after returning to New York and resuming a strict diet with the exception of the crust of half a white roll three times daily, the patient improved. The urine, on September 20 had a specific gravity of 1031 and was loaded with sugar. The following week the sugar was much diminished in quantity, and it disappeared at the end of the second week.

Summary of Treatment.—The more I study the cases of diabetes that have come under my observation, especially those that are now under treatment, in connection with the writings of those who have faithfully followed the dietetic plan, notably Bouchardat and Cantani, the more thoroughly am I convinced that the prognosis in a recent and uncomplicated case of this disease in an adult is invariably favorable, provided, always, that the proper measures of treatment be rigidly enforced. In the hope of convincing the profession that this statement is reliable, I shall, at the risk of what may appear to be needless repetition, give a summary of treatment, with brief statements of the progress of cases that I am now actually observing.

At the outset, patients should be impressed with the fact that they are suffering from a grave disorder, and that everything depends upon their full coöperation in the treatment, which treatment is essentially dietetic. The diet-table should be carefully studied, and the diet regulated and carried out absolutely.

In case a rigid anti-diabetic diet does not promptly influence the glycosuria, it may be well to subject a patient to an absolute fast for twenty-four hours and follow this with the anti-diabetic regimen. This rather harsh measure is suggested by Cantani. I shall not hesitate to employ it in cases in which it may seem to be required, although no such case has as yet come under my observation.

The various measures that I have mentioned under the head of *General Treatment* should be enforced, especially systematic daily muscular exercise. A moderate system of training on the plan adopted by athletes is most useful; and this, if continued, will do much to render a cure permanent after a return to the normal diet.

The return to a normal diet should be gradual, and during this time the urine should be frequently examined, the rigid diet being resumed at the first reappearance of sugar in the urine; but all alcoholic excesses, the immoderate use of sweet fruits, and any use of sugar, should be interdicted at all times. A patient who has once had diabetes is always liable to a return of the disorder. He must lead a thoroughly careful, hygienic, and temperate life. In the words of Bouchardat, "you will not be cured except on the condition that you never believe yourself to be cured."[1]

While I believe that the physician is justified in encouraging patients to expect relief, and even cure, in recent, uncomplicated cases, the diet is all important, and its regulation cannot be expected to be perfect without professional aid in its enforcement. A diabetic is never safe from a return of his disease, even when he believes himself to be cured; and under no circumstances should he pass more than a few weeks without an examination of the urine.

The arsenite of bromine, or Clemens's solution, appears to be useful. We may begin with 3 drops three times daily in a little water immediately after eating, gradually increasing the dose to 5 drops. This may be continued for weeks and months without producing any unfavorable effects; but the administration of this remedy does not supply the place of the dietetic treatment, which should be enforced in all cases. A rigid diet should be continued for two months, at least, even in the mildest cases of the disease. It may be necessary, in certain cases, to continue it for a longer period, even twelve or more months.

There is probably no such disease as intermittent

[1] *Medical Times*, Philadelphia, Dec. 2, 1882, p. 160.

[1] BOUCHARDAT, *De la Glycosurie ou Diabète Sucré*. Paris, 1875, p. 49.

diabetes. In some instances glycosuria occurs during the season of sweet fruits, when they are indulged in excessively, and disappears when the diet is changed; but these are mild cases of diabetes, excluding those in which a transient glycosuria follows the inhalation of irritating vapors, the taking of anæsthetics, etc.

Robust or corpulent persons are more tolerant of the disease than those who are feeble or spare, and the glycosuria yields, in such cases, more readily to treatment.

Diabetes occurs at all ages. Bouchardat mentions a case in an infant of 3 years, although the disease is rare before the age of 12. The most unfavorable cases are those which occur before the age of puberty. An adult male presents the most favorable conditions for cure. In old persons, when the disease is of long standing, the dietetic treatment will secure practical immunity from nearly all the distressing symptoms, although the glycosuria may not be entirely removed.

A study of any of the diet-papers recommended will make it evident that those who are able to follow the required regimen, without regard to the cost of articles of food, present much more favorable conditions, as regards the prospect of cure, than persons in straightened or indigent circumstances. Diabetes, however, occurs in all classes and is by no means a rare disease. A hospital devoted to such cases, where the dietetic treatment could be strictly carried out, would be a boon to the rich and poor alike.

Cases.—I have accounts, more or less complete, of fifty cases of diabetes. A certain number of these cases have been lost sight of; others were followed out in their histories to a fatal termination; and twelve, exclusive of a few that are reported to be cured, are still under either observation or treatment.

Of these fifty cases, sixteen have been lost sight of, nineteen are either known to be living or are under observation, and twelve have died at periods between nine months and over twelve years after I first examined the urine.

Of the seven patients who are living, but whom I do not consider as under observation, one passes sugar constantly and is under an imperfect anti-diabetic diet, but is in what may be called fair health; two are reported as cured, although I have not examined the urine for a long time; four I simply know to be living.

The twelve cases that are under observation are instructive as indicating the value and influence of treatment.

Case A.—The patient, a gentleman thirty-eight years of age, first became aware that he suffered from diabetes mellitus about June 1, 1883. He is five feet five inches in height, and weighs one hundred and twenty-nine pounds. A year ago he weighed one hundred and sixty pounds. He suffered from excessive discharge of urine, with increased appetite, thirst, dryness of the mouth, sleeplessness, fatigue on slight exercise, and, indeed, most of the symptoms of diabetes; but a careful physical examination failed to reveal any other disease. At the time I first saw him, he had been taking quinine and various tonic remedies and had been subjected to an imperfect anti-diabetic diet. At this time, December 29, 1883, he passed eighty ounces of urine in twenty-four hours, containing in all 3,072 grains of sugar. He was immediately put upon a strict diet, taking no bread, drinking very little, and relieving the thirst temporarily by taking pieces of ice. In addition, he took three drops of Clemens's solution three times daily, and continued to take ten grains of quinine each day. After forty-eight hours of this treatment, his intense thirst and excessive urination disappeared, but he expressed himself as feeling rather weak although generally much better. The effect, however, upon the discharge of sugar was remarkable. He passed, during the second twenty-four hours of treatment, forty-three ounces of urine, and the total quantity of sugar was reduced from 3,072 grains to 387 grains.

I heard from this patient January 19, 1884, and received a specimen of the urine of the twenty-four hours of January 17th. For the twenty days since December 29, 1883, he had maintained an absolute anti-diabetic diet, taking no bread. During this time, he took three drops of Clemens's solution three times daily. He had gained three-quarters of a pound in weight. He had suffered somewhat from indigestion but was otherwise quite well. "The very large appetite and thirst are very materially lessened." The quantity of urine in twenty-four hours was forty-eight and one-half fluid-ounces; specific gravity, 1026; absolutely no sugar; there was rather an abundant deposit of amorphus urates with a number of crystals of uric acid. As far as the diabetic condition is concerned, the general symptoms had disappeared as well as the sugar in the urine.

On January 25, 1884, the dose of Clemens's solution was increased to five drops three times daily. The urine was free from sugar. There was no sugar in the urine on January 27 and 29. He was then allowed the crust of half a French roll at breakfast.

On February 4, 1884, I saw the patient again. He had been at home and had committed some slight indiscretions in diet. The urine had a specific gravity of 1030 and contained a small quantity of sugar. The strict diet was resumed.

On February 10, 1884, there was a trace of sugar in the urine.

On February 24, 1884, the patient still under a strict diet and the use of Clemens's solution, there was no sugar in the urine. The patient went home, feeling perfectly well, and promised to send a specimen of urine in two weeks. At no time since the beginning of treatment was there any excessive quantity of urine.[1]

Case B.—The patient is a gentleman fifty-seven years of age, five feet eleven and one-half inches in height, weighing one hundred and twenty-two pounds. He had suffered from diabetes to his knowledge for about one year, with thirst, fatigue after moderate exertion, and other mild symptoms. He had been under a moderate anti-diabetic diet for some weeks. After he came under my observation, his urine, under a strict anti-diabetic diet, was either entirely free from

[1] On April 29, 1884, I received a specimen of urine from this patient. The quantity in twenty-four hours was said to be about fifty fluidounces. The specific gravity was 1022½ and it contained a trace of sugar. The general health was reported as perfect.

sugar or contained merely a trace, for ten months. He had no symptoms and regarded himself as cured. For about three months he took four drops of Clemens's solution three times daily.

On January 17, 1884, he presented himself, passing a large quantity of urine of a specific gravity of 1,027, and loaded with sugar. Having regarded himself as permanently cured, he had returned to his old diet, including sugar, and had stopped the arsenite of bromine for six months. He felt perfectly well but had noticed for somedays that he was passing a large quantity of urine. He was again put upon an anti-diabetic diet (which I fear is not strictly followed) with six drops of Clemens's solution twice daily. On February 7, 1884, he passed a normal quantity of urine of a specific gravity of 1,022, containing but a trace of sugar.

In this case, I cannot secure a strict adherence to the diet and regular examinations of the urine.[1]

Case C.—This patient has been under observation since October, 1880. He was at that time 53 years of age, five feet eight and one-half inches in height, and weighed from 168 to 172 pounds. The diabetes had been recognized a few weeks before he came under my observation, and he had been subjected to an imperfect anti-diabetic diet. He was immediately put upon to a strict diet, and from October 21, 1880, to May 18, 1881, his urine generally contained no sugar, although there was occasionally a trace. In this case the diet was strictly followed, and the patient soon lost his desire for prohibited articles, even bread.

On May 18, 1881, he was allowed the fruits in season, to be taken without sugar. On June 27 he was allowed a little bread. His urine was practically free from sugar until February 17, 1882, with the exception of an occasion on November 5, 1882, when it had a specific gravity of 1,029 and contained considerable sugar following a slight excess at table in taking claret and whiskey and water.

On February 17, 1882, his urine had a specific gravity of 1,026 and contained considerable sugar. He had been living rather freely for some time without committing any actual excesses at table. He moderated his living and was given, in addition to the strict diet, one-quarter of a grain of sulphide of calcium three times daily. From February 17, 1882, to September 1, 1883, his urine was practically free from sugar when examined on ten different occasions, once, only, presenting a mere trace. During the entire treatment he has taken considerable exercise in walking. He took the sulphide of calcium rather irregularly for six months, but it was very disagreeable.

On January 11, 1883, he began to take the arsenite of bromine, which he continued rather irregularly.

On January 23, 1884, his weight had increased to 175½ pounds. Since September 1, 1883, his diet had been practically unrestricted. His urine had a specific gravity of 1021 and contained a small quantity of sugar. He was put on a moderate anti-diabetic diet and the dose of arsenite of bromine was increased to five drops. On February 7, 1884, the sugar was still marked in the urine, but he indulged rather too freely in claret at dinner and drank some brandy and soda during the evening. From February 7, to April 3, 1884, the urine had been nearly always free from sugar.

This may almost be called a case of cure. For the greatest part of the time from October, 1880, to April, 1884, three and one-half years, the urine has been practically free from sugar, for some of the time under an ordinary diet. During this period, sugar has appeared temporarily and in small quantity, possibly as a consequence of occasional indiscretions in the use of wine, which could not by any means be regarded as excesses in a person in ordinary health.[1]

Case D.—This is the case of a lady, rather stout, fifty-nine years of age, who came to me for treatment in December, 1882. The patient has already been referred to in connection with the fact of the existence of sugar in urine of a low specific gravity, (1,011½) and the return of glycosuria immediately following the suspension for one week of the administration of arsenite of bromine.

In December, 1880, the patient was in a deplorable condition, suffering from some of the most distressing symptoms of diabetes. She suffered intensely from thirst, night and day, and was forced to pass the urine nearly every hour. She also suffered greatly from pruritus vulvæ. Her disease was of five years' standing, and she had been subjected to various forms of treatment, but never to a strict diet. She had consulted many distinguished physicians in this country and in Europe.

On December 16, 1882, she passed 128 ounces of urine, of a specific gravity of 1,036, containing twenty-two grains of sugar per fluidounce, or 2,816 grains in the twenty-four hours. The next day she was put upon a strict anti-diabetic diet.

On December 22, 1882, the daily quantity of urine was reduced to 52 ounces, with a specific gravity of 1026, containing eight grains of sugar per fluidounce, or 416 grains in the twenty-four hours. The urine constantly presented crystals of uric acid. The thirst, pruritus, and constant desire to pass urine were relieved.

With the exception of one week, this patient took Clemens's solution, two drops three times daily, the dose finally increased to five drops, from December 27, 1882, to April 2, 1884. The treatment during this period consisted of the diet and Clemens's solution, with occasional remedies to act upon the bowels. She has been almost constantly under treatment, and I made 91 examinations of the urine up to April 6, 1884. Her urine is now examined regularly once a week.

Under treatment, the quantity of sugar in the urine diminished until the glycosuria disappeared January 27, 1883, about thirty days after the first examination. From January 27, 1883, to April 6, 1884, with the exception of about six weeks passed at a watering-place in the summer of 1883, under very unfavorable

[1] I saw this patient on April 29, 1884, and he reported himself as perfectly well, but I did not have an opportunity of examining the urine.

[1] On April 28, 1884, this patient reported himself as perfectly well. His urine had a specific gravity of 1,020½ and contained no sugar. The diet had been not absolutely strict but was what may be called moderately anti-diabetic.

conditions as regards diet, the urine has either been free from sugar or has contained a very small quantity. The quantity of urine has been constantly normal, and the general diabetic symptoms have never reappeared. She now uses the anti-diabetic diet with the crust of one-half of a French roll at each meal, a pint of cream daily, and a little fruit in season.

While this cannot be called an instance of perfect cure, the fact that the patient lives comfortably and in apparently good health under a diet that is not particularly irksome shows that cases of long standing and presenting very unfavorable features are by no means hopeless. This case presented to a remarkable degree the example of a loss of desire for prohibited articles of food. She now looks forward to eating melons in season, which is about the only strong wish she has expressed for food not suited to her condition.[1]

Case E.—The patient in this case is a gentleman about fifty years of age, living in Ohio. I examined his urine May 24, 1878, and November 17, 1881, for some reason not connected with a suspicion of diabetes and found no sugar. On May 4, 1882, I again examined the urine, on account of certain diabetic symptoms, and found a large quantity of sugar. He was at once put on the anti-diabetic diet, which he attempted to carry out by himself at his home in Ohio. In January, 1884, he reported that all his symptoms had been relieved and that he suffers nothing unless he commits indiscretions in diet.

Case F.—The patient in this case is a gentleman about fifty years of age, and of medium muscular and adipose development. Having been suffering for some months from diabetic symptoms, his urine was examined by me on March 22, 1878. I then found a specific gravity of 1022 and a large quantity of sugar. He was at once put upon a moderate anti-diabetic diet.

On April 26, 1878, I found the urine normal, and the diabetic symptoms had disappeared. Between April 26, 1878, and January 10, 1882, I examined the urine seven times, always finding it normal.

On October 14, 1882, he passed ninety-six ounces of urine in the twenty-four hours, with a specific gravity of 1027 and containing 4 grains of sugar per fluidounce. His diet for some time had been irregular, and he had depended on various remedies, such as the bromides and the sulphide of calcium. He then began to take the arsenite of bromine, but his diet, though moderately anti-diabetic, was still imperfectly regulated. His urine, examined February 20, May 18, and May 28, 1883, contained a small quantity of sugar. On August 15, 1883, I examined the urine and found a trace of sugar.

This patient suffers very little from diabetic symptoms. I have little doubt that the glycosuria could be arrested by a few weeks of strict dietetic treatment.

Case G.—The patient is a lady, rather stout, and about seventy-five years of age. Attention was directed to the urine on February 7, 1884, by excessive thirst and urination, with pruritus vulvæ. Before I examined the urine, it was reported to me that she was passing it in large quantity, the specific gravity being 1040, and that it was loaded with sugar. Under an anti-diabetic diet and the arsenite of bromine, in three days the quantity of urine was reduced to the normal standard and the diabetic symptoms disappeared. I examined the urine on February 13, 19, 28, March 4, 11, 17, 21, 25, 31, and April 5, 1884. The urine, with one exception, presented sugar in small but variable proportions, but its quantity was usually normal, and the specific gravity varied between 1007 and 1020. The urine on one occasion, with a specific gravity of 1010, contained a trace of sugar. On March 17, the urine had a specific gravity of 1007 and contained no sugar. The general diabetic symptoms are now entirely relieved. The only fault in the diet is that the patient takes a quart of milk daily. The progress of this case is quite favorable up to the present time.[2]

Case H.—The patient is a large and rather corpulent man, about 60 years of age. I examined the urine December 27, 1882, and found it with a specific gravity of 1027 and containing a considerable quantity of sugar. He was at once put upon the anti-diabetic diet. Under this treatment the glycosuria and other diabetic symptoms disappeared. In July, 1883, he was attacked with hemiplegia, from which he has substantially recovered. He was reported in March, 1884, as perfectly well, having returned to the normal diet.

Cases I, J, K and L.—These are cases of patients who are constantly passing sugar in large quantities, under little or no treatment, but who enjoy fair health. In one of these cases the patient obstinately refuses to regulate the diet, and although he suffers but little from diabetic symptoms, he has become greatly reduced in weight and strength within the past two years. A young daughter of this patient, whom I saw repeatedly and who never followed out the anti-diabetic diet, died of diabetes about three years ago. Another patient has fair health under a rather irregular diet. He is so situated as to be unable to carry out a strict regimen. The two other patients are large and corpulent men, who pass immense quantities of sugar, with no restriction in diet or in drinking.

Of the fifteen cases of death the reports are generally imperfect. Four are reported as having died of diabetes; one, of diabetic coma, possibly acetonæmia; three, of albuminuria; one, of apoplexy; one, of hæmoptysis; one, of "inflammation of the bowels"; and in the remaining four cases I have not been able to learn the cause of death.

Case M.—I have already referred to this case. The patient was a stout, heavy man, about 40 years of age. I examined him November 20, 1869. He then passed 224 ounces of urine in the twenty-four hours,

[1] The urine of this patient is examined regularly once a week, and there has been no sugar, with the exception of a trace on one occasion, for twelve weeks. The last examination was made on May 4, 1884, and no sugar was found. With the exception of sugar, the diet has been but little restricted for three weeks. For the last three weeks the patient has been taking about a pint daily of the lactic acid drink recommended by Cantani.

[1] From April 5 to May 2, 1884, I have made six examinations of the urine. The specific gravity has been between 1012½ and 1020 and a small quantity of sugar has always been noted, but there have been no general diabetic symptoms. The diet has not been rigidly carried out.

[2] This patient died of apoplexy, June 1, 1884.

with a specific gravity of 1035, containing 18 ounces and 30 grains of sugar, and 624 grains of urea. He was immediately put upon a moderate anti-diabetic diet and returned to his home in Nebraska. I heard from time to time for several years that he enjoyed good health and had little or no glycosuria unless he committed serious indiscretions in diet. He died of "inflammation of the bowels," after a short illness, in August, 1881, nearly twelve years after I first saw him, in 1869.

Case N.—On November 6, 1879, I saw in consultation a lady about 58 years of age, rather spare in figure, who had been suffering for some months with diabetes. At this time the quantity of urine was not notably increased, the specific gravity was 1030, and it contained a small quantity of sugar. The treatment had consisted mainly of an imperfect anti-diabetic diet. A more rigid diet was recommended, but it was not strictly enforced. On November 10 and 15, 1877, the urine contained a trace of sugar. On November 29, 1877, the urine was free from sugar, and the patient was much improved. She left for her home in Cuba, and I saw her again on Sept. 2, 1880, when the urine was still free from sugar. In July, 1881, she was passing large quantities of sugar, and I learned that for several months the diet had been unrestricted and she had eaten sweets and fruits immoderately. She returned to the anti-diabetic diet, and I found the urine free from sugar with all the diabetic symptoms relieved on August 2, 1881. She then returned to her old habits of eating, and the urine was found loaded with sugar on Sept. 27, and Oct. 29, 1881. I learned that she died "of diabetes," never having returned to the anti-diabetic diet, in Cuba, in 1882. During the last few weeks of her life she was much prostrated, suffering intensely with boils and carbuncles, which were probably the immediate cause of death.

The diet-table which follows is adapted to those who are able to provide themselves with any kind of food required without regard to cost rather than to persons of restricted pecuniary resources; but I have recognized the fact that those who are subjected to the anti-diabetic diet should secure every possible variety of food. In making this table, I have drawn largely from those already published, particularly the list of permissible articles given by Bouchardat, but, after many trials of the so-called anti-diabetic flours and bread, I have come to the conclusion, as I have already stated, that they are nearly all unreliable. I prefer to make patients abstain entirely from bread, or I allow the crust of half a French roll two or three times daily if I cannot eliminate bread altogether from the diet. The gluten-breads, so-called, are not only unreliable, but they soon become very distasteful. When ordinary bread is allowed, the physician knows, at least, about how much starch is taken.

APPENDIX.

DIET-TABLE.

BREAKFAST.—Oysters stewed, without milk or flour; clams stewed, without milk or flour.

Beefsteak, beefsteak with fried onions, broiled chicken, mutton or lamb chops, kidneys, broiled, stewed, or deviled; tripe, pig's feet, game, ham, bacon, deviled turkey or chicken, sausage, corned-beef hash without potato, minced beef, turkey, chicken, or game, with poached eggs.

All kinds of fish, fish-roe, fish-balls, without potato.

Eggs cooked in any way except with flour or sugar, scrambled eggs with chipped smoked beef, picked salt cod-fish with eggs, omelets plain or with ham, with smoked beef, kidneys, asparagus-points, fine herbs, parsley, truffles, or mushrooms.

Radishes, cucumbers, water-cresses, butter, pot-cheese.

Tea or coffee, with a little cream and no sugar. (Glycerine may be used instead of sugar if desired.)

Light red wine for those who are in the habit of taking wine at breakfast.

LUNCH OR TEA.—Oysters or clams cooked in any way except with flour and milk, chicken, lobster, or any kind of salad except potato, fish of all kinds, chops, steaks, ham, tongue, eggs, crabs, or any kind of meat, head-cheese.

Red wine, dry sherry, or Bass's ale.

DINNER.—Raw oysters, raw clams.

Soups.—*Consommé* of beef, of veal, of chicken, or of turtle, *consommé* with asparagus-points, *consommé* with okra, ox-tail, turtle, terrapin, oyster or clam, without flour or milk; chowder, without milk or potatoes, mock turtle, mullagatawny, tomato, gumbo *filet.*

Fish, etc.—All kinds of fish, lobsters, oysters, clams, terrapin, shrimps, crawfish, hard-shell crabs, soft-shell crabs. (No sauces containing flour or milk.)

Relishes.—Pickles, radishes, celery, sardines, anchovies, olives.

Meats.—All kinds of meat cooked in any way except with flour, all kinds of poultry without dressings containing bread or flour, calf's head, kidneys, sweet-breads, lamb-fries, ham, tongue, all kinds of game; veal, fowl, sweet-breads, etc., with currie but not thickened with flour. (*No liver.*)

Vegetables.—Truffles, lettuce, romaine, chiccory, endive, cucumbers, spinach, sorrel, beet-tops, cauliflower, cabbage, Brussels-sprouts, dandelions, tomatoes, radishes, oyster-plant, celery, onions, string-beans, water-cresses, asparagus, *artichauts*, Jerusalem artichokes, parsley, mushrooms, all kinds of herbs.

Substitutes for Sweets.—Peaches preserved in brandy without sugar, wine-jelly without sugar, *gelée au kirsch* without sugar, *omelette au rhum* without sugar, *omelette à la vanille* without sugar, *gelée au rhum* without sugar, *gelée au café* without sugar.

Miscellaneous.—Butter, cheese of all kinds, eggs cooked in all ways except with flour or sugar, sauces without sugar, milk, or flour.

Almonds, hazel-nuts, walnuts, cocoanuts.

Tea or coffee with a little cream and without sugar. (Glycerine may be used instead of sugar if desired.)

Moderately palatable ice-creams and wine-jellies may be made, sweetened with pure glycerine; but although these may be quite satisfactory for a time they soon become distasteful.

Alcoholic Beverages.—Claret, burgundy, dry sherry, Bass's ale or bitter beer. (No sweet wines.)

PROHIBITED.

Ordinary bread, cake, etc., made with flour, sugar, desserts made with flour or sugar, vegetables, except those mentioned above, sweet fruits.

SILICATE OF SODIUM BANDAGE.[1]

BY EUGENE O. BARDWELL, M.D., MOLINE, ILL.

GENTLEMEN:—I have frequently conversed with physicians of ability, age and experience, who have never employed and consequently never appreciated the value of silicate of sodium bandage as a permanent dressing in fractures of the long-bones.

Silicate of sodium is a solution of silica and sodium carbonate, containing 20 parts of the former to 10 parts of the latter; it is of a syrupy consistence with a specific gravity of from 1,300 to 1,400; it is also called soluble glass or water glass; it possesses many advantages over starch, dextrine, or plaster of paris, in that it is more easily applied, is more uniform in thickness, is more cleanly, and last but not by any means least, it does not contract on drying as do the others. The mode of application is very simple and easy, a common roller bandage is first applied, the joints and bony prominences being protected by cotton; this is followed by another roller which is painted in *situ* with the solution by means of an ordinary flat varnish brush. Other rollers are applied and painted in the same manner until four or five thicknesses of bandage coated with the silicate are in position. This is usually sufficient, but if thought necessary, strips of the roller may be laid longitudinally between the bandages and coated likewise with the solution. Pieces of tin or zinc may be placed between the folds if thought expedient, but I have never required their aid, the bandage without them being very hard and stiff when dry, and effectually preventing the slightest movement of the fracture. The silicate commences to harden at once and is usually hard enough to cut in 24 hours, and if properly put on will keep the fracture in position from the time of application. In fracture of the arm, leg or thigh, the bandage should of course commence at the fingers or toes to avoid possible strangulation; with this precaution, any one who is fit to apply a roller at all, can use this preparation with perfect safety and without fear.

At the end of one day it is usually advisable to cut the roller, as it will probably not fit the part closely enough, as the equable pressure of an unyielding substance from the extremity to a point above the fracture will generally quiet muscular action, and consequently, in removing a prominent source of irritation, reduce the swelling of the part affected. No one would think of using an application of this nature until the swelling and engorgement following the injury had perceptibly diminished. It is not, however, either necessary or desirable to wait until the swelling has entirely disappeared.

The bandage should usually be cut at the end of twenty-four hours. This may be done with Seuten's pliers, which are sold by dealers in surgical instruments. They are heavy shears with the blades curving upward, the nether blade being flattened to facilitate its introduction under the bandage. In lieu of these a narrow strip of tin or zinc may be placed along the limb under the first silicated layer, and with this for a director any strong cutting instrument may be utilized. Commencing at the extremity, the bandage is cut through from one end to the other, usually on the external aspect of the limb, for the sake of convenience. At distances which are variable, owing to circumstances, pieces of a roller or of tape are then passed around the bandage, or splint, as it is now more properly called, and tied firmly enough to hold the injured member in proper position. If the limb is smaller than when the bandage was applied, a longitudinal section is cut out wide enough to leave a small space between the edges of the splint when tightened, so that should it become looser in the absence of the surgeon it may be easily tightened with the tapes by the patient himself or any one in the household. In cases of compound fracture, a trap may be cut anywhere for purposes of drainage, examination or treatment. As a rule, we apply this dressing about the seventh day following the injury, and in ordinary cases the patient is able to be out of bed two or three days later, able to sit on a chair and get around on crutches with perfect comfort, so far as pain is concerned, and without any prejudicial effect on the union of the fracture. We are aware that a certain length of time must inevitably elapse after fracture before complete union can take place. The general health and physical condition of the patient will, however, as it is good or bad, shorten or lengthen this period perceptibly; and certainly the sooner the patient can get out of bed with perfect comfort and safety the sooner will his general condition approximate the normal. I think that the great majority of cases of fracture of the long bones, either simple or compound, can, with perfect safety to themselves and with gratification to their friends and their physician, get about the house in from ten to twelve days.

A few cases may be adduced in illustration. In the fall of 1879 I was sent for to see a man who had been injured by the fall of a building. I found his right tibia fractured at the lower third and his right ankle badly sprained, the fracture was reduced and the usual splints applied, it was six weeks before he could get around the house, and several months before he entirely recovered. About two months later W. H. while working in a saw mill, was caught by the carriage, thrown down and injured. On examination I found his right ankle severely sprained and the tibia of the corresponding side fractured at the

[1] A paper read before the Rock Island County Medical Society at Rock Island, Ill., April 1, 1884. Published by request of the Society.

lower third, with an open wound leading to the fracture where the patient said the bolt entered which broke his leg; the fracture was reduced, the wound covered with a compress saturated with carbolized oil (1 to 40) and the limb kept in position by sand bags. At the end of six days, the swelling having materially diminished, I applied the silicated roller, cutting a trap over the wound, the next day I cut the bandage and put on the tapes. Three days later W. H. was out on crutches, said he had no pain, and the splint was left off entirely at the end of four weeks. These two cases under the same treatment would in all probability have followed the same course, although the latter, being compound, was the most serious.

In the spring of 1882 I was sent for to see a boy of 8 years, who had been injured by the fall of a pile of lumber. He had sustained a fracture of the right tibia at the middle third, the silicated bandage was applied the fifth day. I cut it the next day and showed the mother how to adjust the tapes to keep the splint tight enough, the boy got up that afternoon and I did not see him again until he walked into my office with his father five weeks later. In August, 1883, G. C., aged 50 years, working in a saw mill, received a blow from the end of a heavy plank which fractured the right femur at the junction of the middle with the lower third. I reduced the fracture and used extension to the amount of twelve pounds for four days, when it was reduced to eight pounds; the sixth day the silicated bandage was put on from the toes to the trochanters, the weights were left on until the roller became hard and were then removed, the splint opened, and tapes adjusted; careful measurement showed the leg to be the same length after the weights were removed as before.

The patient got about on crutches without pain or uneasiness at once, and at the end of two weeks walked on crutches one and one-half miles from his house to the mill, and returned the same afternoon without any bad results whatever; when I last saw him in October, he walked without a cane and without a limp. I have treated numerous other cases with this preparation, as have other physicians of my acquaintance, and the results have been uniformly successful and gratifying to all concerned. It is my belief that the great majority of cases of fracture of the leg and thigh should be out of bed within two weeks from the date of the injury, and that they may be with perfect safety to the injured member and with great benefit to the physical and mental condition of the patient. Of course there are cases where complications may exist or arrise to prevent, but they will prove exceptions to the rule.

I have used the silicate in place of plaster of paris in the application of Sayre's jacket for spinal curvature, and believe it much to be preferred to the latter in every way. In conclusion I would request the members of this society who have not used this dressing to give it a trial before passing judgment. Those who have used it will, I am sure, endorse my statements.

MEDICAL PROGRESS.

MEDICINE.

M. PASTEUR ON THE VIRUS OF RABIES.—This important paper, which was communicated to the Paris Académié des Sciences, and which is exciting so much comment at present, is literally translated (*Medical Times*) as follows:

The important fact that certain infective poisons vary in respect to their virulence, and that insusceptibility to a virus may be secured by means of another virus of less intensity, is at the present moment not only an abstract scientific discovery, but has found an application in the domain of practice. Research being once turned in this direction, it is easy to understand how great an interest attaches to investigations into the methods of attenuation appropriate to new viruses. I have the honor, on the present occasion, to bring under the notice of the Academy an advance in this direction, in reference to rabies.

1. If the poison of rabies be transmitted from the dog to the monkey, and then from monkey to monkey, its virulence diminishes with each inoculation. If the virus, which has been thus enfeebled by inoculation from monkey to monkey, be then retransmitted to a dog, a rabbit, or a guinea-pig, it still remains attenuated. In other words, the virulence never returns at once to the degree found in the mad dog in the streets.

2. The virulence of the poison of rabies is increased when it is transmitted from rabbit to rabbit, or from guinea-pig to guinea-pig. When the virulence has thus increased and reached its maximum in the rabbit, the virus still retains this high degree of virulence when transmitted to the dog, and is evidently much more intensely virulent than the virus of the mad dog of the streets. Under these conditions, indeed, the poison is so virulent, that when inoculated into the circulation of a dog, fatal rabies is the invariable result.

3. Although the virulence of the poison is intensified in its passage from rabbit to rabbit, and from guinea-pig to guinea-pig, it requires many successive inoculations before it recovers its maximum virulence, when it has been previously attenuated in the monkey. Further, the poison found in the mad dog of the streets, which, as I have just said, is far from being of maximum virulence, when it is inoculated in the rabbit, requires to be passed through many individual rabbits before it attains that maximum.

If we apply rationally the results I have just communicated, we can easily render dogs proof against rabies. The investigator may have at his disposal the virus of rabies in different degrees of attenuation; the non-fatal kinds preserving the economy from the effects of the more active and fatal kinds. Let us take an example. We take the virus of rabies from a rabbit which has died after inoculation by trephining at the end of a period of incubation, exceeding by several days the shortest period of incubation commonly met with in the rabbit. This period invariably occurs between the seventh and eighth day

after inoculation by trephining with poison of maximum virulence. The virus from a rabbit, with the longest incubation period, is inoculated, again by trephining, in a second rabbit; the poison from this rabbit in a third. Each time the poison, which is becoming less and less virulent, is communicated to a dog. The latter is at length found capable of resisting a poison of fatal virulence. It becomes, in fact, entirely proof against rabies, when the poison of the mad dog of the streets is introduced into its system, either by intra-venous inoculation or by trephining.

By inoculations with the blood of animals I have been able greatly to simplify the operation of vaccination, and to produce in the dog the most marked insusceptibility to this disease. I shall shortly communicate to the Academy the total result of what I have found in connection with this point.

It will be of considerable interest, both now and up to the distant epoch when rabies has become extinct as the result of vaccination, to be able to prevent the disease developing after bites by rabid dogs. On this point the first experiments that I have made give me the greatest hopes of success. Thanks to the length of the period of incubation of rabies when communicated by the bite of a rabid animal, I have reason to believe that we can with certainty produce a condition of insusceptibility in those who are bitten, before the fatal malady is due.

The first results are very favorable to this view, but it will be necessary to repeat the experiments to an infinite extent on all manner of animals, before we shall have the courage to try this mode of prophylaxis on the human subject.

The Academy will understand that, in spite of the confidence inspired by the numerous experiments I have made during the last four years, it is not without apprehension that I now publish facts which point to nothing less than a possible prophylaxis against rabies.

If I had had sufficient material at my disposal, I should have preferred to defer this communication until I had asked some of my colleagues at this Academy and at the Academy of Medicine to examine the conclusions I have just made known. In deference to these scruples and motives, I took the liberty of writing a few days ago to Mr. Fallières, Minister of Public Instruction, asking him to be good enough to appoint a commission to whom I might submit the dogs which have been made proof against rabies. The crucial test which I would propose, would consist in the first place in taking from my kennels twenty dogs proof against rabies, and placing them side by side with twenty dogs intended to serve as my witnesses. We should then have these forty animals bitten successfully by mad dogs. If the facts which I have enumerated are correct, the twenty dogs which I believe to be proof against the disease would all remain healthy, while the twenty witness dogs would become infected with rabies. In a second and not less conclusive experiment, we should take forty dogs—twenty vaccinated before the Commission, and twenty not vaccinated. The forty dogs would then be inoculated by trephining with the virus of the mad dog of the streets. The twenty vaccinated dogs would be proof against the infection, while the other twenty would all die of rabies, with symptoms either of paralysis or madness.

Cases of Epilepsy, with Unusually slow Pulse.—At a recent meeting of the Harveian Society of London (*Medical Times*), Mr. St. George Mivart read the notes of a case of epileptiform convulsions in a retired policeman aged 61 years, which were of six years' standing—the pulse rate ranging now from 20 to 24 beats per minute. The convulsions were not frequent, the last being eight weeks previous. There was a slight systolic mitral murmur, together with an aortic systolic murmur. He considered the case to be one of fatty heart, with atheromatous deposit about the valves; and considered the seizures to be essentially of a syncopal character, modified by the epileptic tendency of the patient.

Dr. Hare related at some length a closely analogous case of unusually slow pulse associated with *petit-mal*. The pulse had gradually dropped to the unparalleled rate of 13½ per minute, at which it was maintained for a considerable period, ultimately rising to 30 and 40. The patient, a nobleman, aged 57, had, up to the time of his illness, displayed the greatest activity, both mental and physical. Death occurred in a fit. No abnormality of the heart sounds had been observed during life, and at the *post-mortem* examination the valves were found competent, and the heart but slightly enlarged and not fatty—with the exception of slight enlargement of the kidneys, the other organs were practically normal.

Esbach's Method for Estimating the Quantity of Albumen in Urine.—Dr. Henry Veale gives this method at some length in the British *Medical Journal*. The method consists in measuring in a graduated tube, the height of the deposit given by a measured quantity of albuminous urine, when treated with a solution containing picric acid and citric acid in the proportions respectively of one and two per cent.

The test tube is somewhat stouter than an ordinary test tube. It is six inches long, and about nine-sixteenths of an inch in diameter. On its outer surface it bears a scale of seven degrees, diminishing in size from below upwards, whereby the quantity of albumen represented by the deposit is intended to be read off in grammes per litre, *i. e.*, in parts per 1,000. Somewhat above this scale is a dotted line marked U (urine), and at a certain distance above it another line marked R. (re-agent).

The test solution is made by dissolving one part of picric acid and two parts of pure air-dried citric acid by the aid of heat, in about 80 or 90 parts of distilled water, adding subsequently enough water to make exactly 100 parts—or 35 grains of picric acid and 70 grains of citric acid in 8 fluid ounces of distilled water.

1. The urine should be filtered.

2. If not distinctly acid, it should be rendered so by the cautious addition of acetic acid, drop by drop, until it changes litmus paper to a brick-red.

3. If the specific gravity exceed 1010, the urine

should be diluted by one or more volumes of water, so as to bring it below that figure.

4. If, after the first trial, the urine should be found to contain more than 4 per 1,000 of albumen, it should be diluted so as to bring the deposit below the line 5 of the tube; and in either of these two cases the indication given by the deposit must be doubled or trebled according to the degree of dilution.

5. With the urine thus prepared, fill the tube up to the line U. Add the re-agent up to the line R. Close the tube with an india-rubber plug, and gently turn it up and down a dozen times, so as thoroughly to mix without frothing the contents.

6. Let the tube remain at rest in the upright position for twenty-four hours, and, at the end of that time, read on the scale the amount of the deposit.

Example—A patient passes in twenty-four hours in cubic centi-metres of urine—35¼ fluid ounces of specific gravity 1024—a filtered portion of this is diluted with twice its bulk of water, and the deposit, after 24 hours, reaches to the line 3 of the tube. Then, this number multiplied by 3, on account of the dilution, indicates 9 grammes per litre (*i. e.*, 9 parts per 1,000) as the quantity of dry albumen contained in the specimen. Of course the same number divided by 10 will give the parts per hundred, and, if this be multiplied by the factor 4.4 (strictly 4.375) it will give, very nearly, the number of grains per fluid-ounce; thus, 9x4.4=3.96.

Dr. Veale finds Esbach's method to afford results that are accurate enough for all clinical purposes. It is simple enough to be performed as a daily duty by any intelligent nurse, or even by the patient himself. It is certainly better adapted for cases in which the loss of albumen is large, as in nephritis and certain cardiac diseases, than for those in which the albuminuria is slight and transitory; but, in the latter, a daily quantitative estimation of the albumen discharge would very seldom be considered requisite.

A THERMOSTATIC NURSE.—After the description of the couveuse which has been given in these pages, it will be well to refer to an English invention of somewhat the same character which is now in use in the City of London Lying-in Hospital, by Dr. Clement Godson. The apparatus, according to the *Lancet*, is made upon the same principle as the Champion Incubator for eggs, from which it differs in having a cradle above the water-tank instead of a drawer below. The case of the thermostatic nurse is of wood, and is divided horizontally into an upper and a lower compartment by a shallow enclosed tank of water, which extends to within two inches of the wood work all round, this interval being left to allow of the free access of air from the lower to the upper part. Above the water tank, and supported on slips of wood, is a cradle for the reception of the infant, which is kept in view through a glass window on the top of the apparatus. This sash is hinged at the back to a portion of the cover, about four inches wide. Affixed to this part of the cover is the lever-plate, the alarum, and the thermometer, the scale of the latter being outside and under immediate observation. Through the bottom of the apparatus a hole three inches in diameter permits the entrance of a liberal supply of pure air, which constantly traverses two layers of very coarse canvas kept continuously wet. This is obtained by a simple arrangement of a metal tray with central perforated cap fitting over the opening in the bottom, and a coarsely-perforated zinc plate, coated on its upper surface by the canvas which dips into the water all round the edges of the tray. By this means the canvas is continually absorbing the moisture, while it is receiving a regular supply of heat from the bottom of the water-tank; thus the air entering is uniformly moistened and heated. Altogether outside the apparatus there is a gas flame, the heat from which passes through a flue shaped like the letter U, so as to traverse twice the length of the water-tank, by which means the water is heated. The great advantage of this apparatus, however, is seen in the automatic arrangement which it possesses for keeping the internal temperature uniform. A hermetically-sealed metallic capsule, two inches square and containing a small quantity of a liquid which boils at 90° F., is fixed in the space at the head of the cradle; and in the center of the upper part of this capsule is a button, having a cup-shaped depression, in which rests the lower end of a stiff wire, which passes out through the top of the apparatus, where it comes into contact with a light lever, which is pivoted to a brass plate. From the free end of this lever hangs a little damper, which rests on the top of the chimney under which the gas-jet burns. As soon as the temperature in the infant's room reaches 90° F. the liquid in the capsule will boil, and the vapor thus produced converts the flat capsule into a rounded one, thereby raising the rod, which, acting on the lever, at once lifts the damper off the chimney, allowing the heat from the flame to escape by that outlet, and preventing the further heating of the water-tank. If a higher temperature than the boiling point of the liquid within the capsule be desired, this can be obtained by moving a weight along the lever toward the end to which the damper is attached; the further it is placed in this direction, the greater is the heat produced. The alarm is made to ring whenever the internal temperature reaches a certain point. It should be mentioned that outside the machine, near the foot of the cradle, a feeding-cup is placed, the food within which is kept warm and ready for use by means of the hot water in the tank.

MEASUREMENTS OF THE SPECIFIC GRAVITY OF THE BLOOD IN DISEASE.—Dr. Charles S. Roy gives to the Physiological Society the following method for this purpose (*The Journal of Physiology*): The abandonment of venesections has caused a neglect of this interesting and important subject, as it is no longer an easy matter to obtain from the living patient a sufficient quantity of blood to permit of its density being estimated by any of the various methods which are in use for measuring the specific gravity of fluids.

The few observations which are recorded on the density of the blood in disease show that the specific gravity of this fluid may undergo very great changes as a result of various morbid conditions. Davy, for example, gives one case in which the density of the

blood was found so low as 1038—the normal average in man being 1055.

The only instrument required for measuring the specific gravity of the blood by Dr. Roy's method is an ordinary hypodermic syringe, the needle of which has been slightly altered, its point having been taken off and the steel tube prolonged backwards so that its inner end when it is fixed on the syringe is visible from without. Besides this instrument there are required a number of solutions of salt of various densities from 1040 to 1075. Two dozen ten ounce bottles are amply sufficient, they should be wide enough in the mouth to allow of the syringe being filled from them directly.

The syringe having been half or three-quarters filled with one of the salt solutions, a portion of a drop of the blood to be examined (obtained from the finger in the ordinary way) is drawn up into the syringe, care being taken that no air is introduced with it. If, now, the blood be of greater specific gravity than the fluid in the syringe, it at once sinks to the lower part of the latter, while if it be of less density, it at once rises to the upper part of the glass tube of the syringe. In the former case, having emptied the syringe, the process is repeated with a solution of higher specific gravity, and one or two trials enable the observer to find between what two solutions the drop of blood ceases to sink and rises instead. The method is one of extreme delicacy, a very minute difference in density between the blood and the fluid employed showing itself at once by the behavior of the drop.

The difference in temperature between the blood and the standard solution into which it is drawn, might seem to have a marked influence on the result of the measurement. The effect of this is found, however, in practice to be so slight that it may, for all practical purposes, be ignored. This is doubtless due to the fact that the small part of a drop which is drawn into the syringe, at once loses a great part of its heat to the much larger quantity of fluid with which it comes in immediate contact.

The following is briefly all that is known on the subject of the normal limits of the density of blood in man:

The blood of men is somewhat heavier than that of women, the values for the former being from 1056 to 1059, while the blood of females varies from 1051 to 1055. The blood of children is specifically lighter than that of adults. It would also seem that the density of the blood is greater in the morning than it is at night, an effect apparently due to the fluids swallowed during the day.

ANATOMY AND PHYSIOLOGY.

Functions of the Spleen.—In the last number of *Virchow's Archiv*, Professor Alex. Tauber, of Warsaw, gives as quoted by the *Lancet*, an excellent review of the theories concerning the functions of the spleen, closing with the results of his own observations.

Thus, in 1833 Tiedemann considered the spleen to be a blood-forming organ, and that after its removal its function was transferred to the thyroid body; an opinion contested by Brücke, who held there was nothing in common between the thyroid and the lymphatic system, to which the spleen belonged. Neumann and Ehrlich doubt that the spleen has any hæmapoietic function. Schiff and Herzen think that the spleen develops a ferment which is necessary to the pancreas in its digestive action, a view disproved by the fact that nutrition is not impaired by removal of the spleen. Schiff goes further by asserting that its removal does not influence, either actually or relatively, the amount of red and white corpuscles, whilst Robin, on the other hand, found in two cases of splenic extirpation in the human subject an increase in the number of leucocytes, and notable variations in the size of the corpuscles. Recently Winogradaff, of St. Petersburg, found very marked changes in the lymphatic glands, and also in the bone-marrow of animals deprived of the spleen, the former being softer than normal, and containing many free red blood-corpuscles. At the German Surgical Congress, held at Dresden in 1882, Dr. Credé showed a man forty-four years of age, from whom he had successfully removed a cystic spleen. Two months after the operation the blood was found to contain a large excess of leucocytes, but three months later their number was nearly normal. Credé had observed in the early weeks after the excision that the thyroid had enlarged in size—an enlargement which persisted to a certain extent. The lymphatic glands did not enlarge. Credé concluded from this and other cases that the splenic function was to convert white into red corpuscles, and that leucocytosis ensues on removal of the organ until the thyroid is enabled to act vicariously.

This idea was further expanded by Zesas, who published the details of experiments on the subject at the end of 1882, from which he concluded that the spleen converted white into red corpuscles, but that other organs also had this power; that increase in the number of white corpuscles and diminution in the red occur upon extirpation of the spleen until the above function is taken on by another organ, and that this property of acting vicariously to the spleen resides in the thyroid as well as in the bronchial and mesenteric glands. The lymphatic glands alone are incapable of supplying the needs of the organism in this respect, so that simultaneous removal of the spleen and thyroid is incompatible with life, this last being based on the issue of a single experiment.

Tauber remarks that practical surgery now affords more means of arriving at a conclusion, since more than fifty cases of extirpation of the spleen are on record. In 1882, previous to performing this operation for cystic degeneration of the organ, he made many experiments on the lower animals, and was thereby convinced that excision of the healthy spleen could be performed without injury to the animal's health. He practiced excisions of the spleen and of the thyroid in fifteen animals, in some removing one of these organs, in others both, and examined

the blood in each case. Six of these animals died, one from the operation itself, another from acute peritonitis; the others from weakness within three weeks of the operation, after the wounds had cicatrized; post-mortem examination showing marked congestion of the liver, lungs, and lymphatic glands, and intestinal hæmorrhages. He points out that the thyroid is very often entirely wanting in the domestic animals, and yet in such animals splenectomy is as well borne as in those having a well developed thyroid. These experiments then do not support the doctrines advanced by Tiedemann, Crede, and Zesas as to an interchange of function between these organs. Nor did Rœher in his numerous cases of thyroid excision in the human subject meet with one case in which the spleen became subsequently enlarged.

The deductions Tauber draws from these experiments, and from clinical observations, are: 1. That the spleen must be regarded as one of the main reservoirs of the blood; its removal, therefore, exerts a great influence on the circulation, as seen in the occurrence, shortly after the excision, of congestion of the liver, kidneys, and especially of the lymphatic glands. 2. No physiological affinity exists between the thyroid and the spleen. 3. An animal of middle age bears splenotomy much better than an old animal, hæmorrhages being liable to occur in the latter. 4. Animals deprived of the spleen can bear living young, in whom the spleen is present. 5. The removal of the spleen does not impair the digestive function or nutrition. 6. After removal of the spleen the animal becomes anæmic; the relative and positive number of white corpuscles notably increases, whilst the size and number of the red corpuscles diminish.

SURGERY.

AN EASY AND SAFE METHOD OF SOUNDING FOR IMPACTED GALL-STONES.—With this title as its heading, Dr. George Harley communicated a paper to the Royal Medical and Chirurgical Society (*Medical Times*) which contained the details of the case of a lady 36 years of age, who had been for many weeks suffering from the signs and symptoms of obstructed bile duct. After placing her under an anæsthetic, Dr. Harley inserted a six-inch long French exploring trocar midway between the umbilicus and margin of the liver, an inch and a half to the right of the median line. Its point being pushed upwards and backwards in the direction of the common bile duct, no hard substance was met with; on the stilette being withdrawn ascitic fluid came away, and the canula could be moved freely in all directions. The instrument was withdrawn and re-inserted an inch higher up, and about two inches to the right of the umbilicus. On pushing it in the same direction as before, to the depth of six inches, its point struck into a hard substance, presumed to be a biliary calculus. It was endeavored to estimate the size of the stone by pressing the end of the canula without the stilette firmly against the hard substance, and moving the point of the instrument all round it. The inference was that the stone was the size of a hazel-nut. The punctures were closed by means of sticking-plaster, and the abdomen bandaged. The signs of obstruction began rapidly to disappear, and it was supposed that the operation had caused the stone to change its position in the duct, and had thus enabled it to pass along into the duodenum. Convalescence at once set in, but was of short duration, for an attack of enteritis supervened, followed by peritonitis, and the patient succumbed twenty-seven days after the sounding, and twenty-four after the stone had evidently left the duct. At the autopsy, the thirteen calculi shown to the Society were found still in the gall-bladder, the longest being an inch in length, the next the size of a hazel-nut, the remainder all much smaller. The facets on the opposite ends of the large calculus showed that another stone, the size of a hazel-nut, must have existed, but come away. The paper ended with the following conclusions:

(*a*). That the presence of an impacted gall-stone may be readily, as well as safely, ascertained in the way described.

(*b*). That not only the position, but even the size and shape of an impacted biliary calculus may be instrumentally ascertained.

(*c*). That a knowledge of these facts may possibly induce surgeons to undertake the earlier artificial removal of dangerously impacted gall-stones than heretofore; an operation which ought to be, under ordinary circumstances, no more hazardous to the life of the patient than the operation of lithotomy. He believed that the fatality that had hitherto attended the operation had been almost entirely due to the fact of its having been delayed until the exhaustion of the patient precluded the possibility of recovery.

In the discussion which followed the reading of this paper, the members present seemed to think the operation anything but an easy or safe one, judging from the views expressed by Sir William MacCormac, Dr. Dyce Duckworth, Dr. O'Connor, and Dr. C. J. Hare.

THERAPEUTICS AND MATERIA MEDICA.

MENTHOL.—Mr. Archibald D. Macdonald, in a note to the *British Medical Journal*, calls attention to the fact that he was the first to point out the antiseptic and anti-neuralgic properties of menthol, in the *Lancet*, in 1879. He uses this drug in tinea tonsurans with success, both simply in rectified spirit, and in a pommade with iodoform and vaseline.

In facial neuralgia, some forms of sciatica, neuralgic headache (clams), and in toothache, he has repeatedly given relief by its use, both in the form of the stick or cone, and with the following formula—menthol, 30 grains; spirit of rosemary and rectified spirit, each 2 drachms.

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SATURDAY, JULY 12, 1884.

Blindness from Ophthalmia Neonatorum and its Prophylaxis.—The possibility of blindness occurring to a human being from any cause whatever, and at any period of life, is of such vital importance to everyone concerned that it is not possible to give too much attention to avert such a possible danger. This is especially the case where any neglect of the helpless infant, when ushered into the world, may involve the absolute deprivation of the sense of light for a whole life-time. That many have been in the past, guilty of such neglect, is manifest from the testimony afforded by the statistics of the victims to a life-long blindness. Magnus,[1] of Breslau, gave as his observation up to the time referred to, that 34 per cent. of the blind in the institution at Breslau became blind as a result of ophthalmia neonatorum. He has, however, in his recently published work Die Blindheit, ihre Entstehung und ihre Verhütung, reduced, by further observation, the percentage to 13.25 per cent., whilst the percentage of the aggregate of a number of observers in different parts of the German Empire amounts to 10,876 per cent. Calling this number for the sake of convenience 10, we have the astonishing statement that 10 per cent. of all the blind, that is totally blind, in Germany, have been thus deprived of sight through ophthalmia neonatorum. This it must be remembered takes no cognizance of those cases where the sight has been only more or less impaired. We have not at hand the necessary statistics to enable us to form an opinion as to whether an equally alarming result would be furnished by our own institutions; but from the figures at our disposal it is probable that an equal number of victims which swell the ranks of the blind in our own country are from the same cause deprived of sight. And they are consequently not only practically deprived of contributing to the world's wealth, but dependent on the contributions of others. It is well, in order to form an adequate conception of what these figures mean, to refer to the figures of Dr. Appia as quoted by Magnus. He states that France spends nine million francs a year for the support of the blind, and if 10 per cent. of this is caused by ophthalmia neonatorum, we have an expense of nine hundred thousand francs for the sustenance of those suffering from this affection alone. According to the calculation of Magnus, the whole cost to Prussia of its blind is twenty million marks a year, and making a similar allowance of 10 per cent. of ophthalmia neonatorum, we have an annual sum of two million marks entailed on the government by this affection alone.

We have only referred to this economical aspect of the question, however, in order to bring into relief the magnitude of the question under consideration. No physician needs such a reminder to induce him to discharge his duty. If the ambition of doing all that he can do for a given case and doing it well, is not an inducement strong enough, no question of economy will supply the necessary zeal. As a matter of fact this 10 per cent. of blind from ophthalmia neonatorum, as shown by the observations of Credé at Leipzig, is simply the result of negligence or ignorance which, by due care, can be completely avoided. We cannot by this be understood as saying that no case of ophthalmia neonatorum needs be followed by the loss of an eye, but we do say that no case should be allowed to get into that condition where such a result is unavoidable. Care should be taken as early as possible after delivery to have the child's eyes washed with clean water and a little soft linen or a wad of absorbent cotton, each piece when it has been used being thrown away to give place to a piece unsoiled. Should any suspicious accumulation be seen, however, in the region of the eyes it should be carefully wiped off before the process of washing takes place. It should not be necessary to remind those who undertake such a duty that whatever there is objectionable in the parturient canal will be sure to find a lodgement in the angles of the eyes, and consequently no one can claim to have given cleanliness a fair show who has not given special attention to these regions. Successful efforts have been directed by Professor Credé,

[1] *Breslauer Arzliche Zeitschrift*, 1882, No. 19.

of Leipzig, to the prophylaxis of this affection and the admirable results which he has obtained, convinces one that if the 10 or 11 per cent. of the blind attributable to ophthalmia neonatorum, continue to figure in our statistics of the blind, it will be because the little ones have been ignorantly or negligently attended to.

The records[1] of the Leipzig lying-in hospital from the beginning of the year 1874 to the end of May, 1880, show that 10 per cent. of all the births there developed ophthalmia neonatorum, whilst after special attention was given to the infants' eyes, the number was reduced to one-half of one per cent., in fact an individual case, which it was found had not received proper attention. The plan there adopted is such as we have referred to with the addition of a single drop of a 2 per cent. solution of nitrate of silver, which is dropped from a glass rod on to the cornea. Although we should prefer to depend on cleanliness alone, reserving the solution of nitrate of silver for the manifestation of active difficulty, yet it would appear from the observations of others that the same advantage is not obtained from simple cleanliness, so that whenever it is known that a leucorrhœal discharge exists at the time of delivery the most efficient prophylactic measures consist in supplementing the most scrupulous cleanliness with the instillation of a single drop of nitrate of silver into each eye. This seems the more plausible, as Professor Credé assures us that no evil consequences whatever associated with its application. Children born at full term exhibit merely a slight redness, never any swelling, whilst in children of premature birth a slight increase of secretion is developed, which disappears at the latest at the end of forty-eight hours. He claims that after the instillation of the nitrate of silver no further attention is necessary.

The probability is, however, that the greater part of the cases of ophthalmia neonatorum occur in the hands of midwives, consequently any prophylactic measures should be of such a nature that the midwives can readily be trusted with them. Now a 2 per cent. or a 10 grain to the ounce, solution of nitrate of silver, can scarcely beentrusted to the average midwife for instillation into the eye of an infant, consequently we should prefer to trust to a scrupulous cleanliness early effected, and consider the question of nitrate of silver later on if the disease displays itself. This position is justified by the teaching of both ophthalmologists and by those who devote their attention especially to gonorrhœa. Both specialists tell us that active agents in the early stage of the disease are to be avoided.

[1] Magnus, die Blindheit, etc., p. 300.

Progress of Cholera in France.—The chances of controlling the epidemic within the cities of Toulon and Marseilles are by no means as hopeful as they were a week ago. The number of cases has steadily increased in those cities, and the disease is appearing at other points. Quoting from the dispatches of this morning, July 8, we find that night before last there were sixteen fatal cases in Marseilles, and during yesterday up to five o'clock there were twelve.

At Toulon during the same night there were nine deaths, and during yesterday there were seven.

Two cases were reported yesterday at Nice. Eighteen hundred persons left Marseilles yesterday.

An English steamer from Marseilles was signalled off Lisbon July 6, having two cases of cholera on board.

Two refugees from Toulon were found at Saluzzo the same day, victims of cholera.

Dr. Koch, of the German Cholera Commission, is busy at Toulon making examinations of cholera patients. He states that the epidemic is Asiatic, and finds *microbes* of the same class as in Egypt and India.

He predicts a general spreading of the disease from so central a point as Toulon.

Such are the commercial relations of Great Britain with France that it seems well nigh impossible to establish the absolute quarantine which was established in Egypt last year, and we may look for the appearance of the disease along the great centers of travel, as a matter beyond control.

We again urge all who may in any way be responsible for the sanitation of the highways of travel and the health of cities to leave no effort untried which shall promise restraint to the spread of the epidemic or which may lessen its fatality.

The popular germ theories and associate doctrines of contagiousness, greatly exaggerated by the newspaper press, are adding to the terror of all classes of people, and will correspondingly increase the destructive effects of the epidemic wherever it makes its appearance. For of all the predisposing causes of cholera, fear, dread, and mental trepidation are among the most efficient. While cleanliness of person and premises, wholesomeness of diet, and a fearless contented mind, usefully occupied, will do more to protect the individual in the midst of a cholera epidemic than all other prophylactics put together.

Cholera Germs and Cholera Virus.—It is well known that Prof. Koch, in his communications to the

German Government, claims as the result of the investigations of his commission, both in Egypt and India, the discovery of a bacillus which is specifically essential to cholera, and readily found in every case, in the mucous membrane of the intestines and in the rice-water stools. It is also stated that the same variety of bacillus was found in some of the water used by the natives in India.

Koch states that these bacilli are peculiar as to shape, motion, and tendency to aggregation.

He does not believe them to be simply concomitants of disease, or normal intestinal inhabitants.

They are not found in the stomach or matters vomited, which were not obviously of fæculent character.

He has thus far failed to inoculate animals with these bacilli. They may be developed rapidly outside the human body when subject to warmth and moisture. They are readily destroyed by drying, and by contact with fluids even slightly acid. Alkaline solutions are not thus destructive. A field for further investigation is here opened, which, whether confirmatory or corrective of the views of Prof. Koch, can hardly be over-estimated in importance and its wide-reaching relations.

But while Koch has failed to propagate the cholera in any of the lower animals, either by inoculating them with his cultivated bacilli, or feeding them with the intestines of cholera patients, Mr. Vincent Richards, of India, has been more successful in his experiments on pigs, as the following extract from the *London Lancet* of May 10 will show:

"The *Indian Medical Gazette*, for April, contains a paper by Mr. Vincent Richards, detailing his experiments on pigs, which, as stated last week, were at first erroneously thought to be confirmatory of the opinion of Koch, that a bacillus is the essential agent in propagating the disease. Mr. Richards, who had previously failed in obtaining results in the dog, tells how he was led to administer choleraic discharge to pigs. A young animal so treated was attacked with vomiting, and died in a few hours. Another pig was fed on the contents of the intestines of a pig killed by the choleraic discharge, and remained unaffected; it also was not affected by the alvine discharge from a patient in the first stage of cholera, but was subsequently killed in eighty minutes by the administration of an undoubted choleraic evacuation. Decomposing choleraic discharges had no effect on the pigs; but, as in other instances, the administration of recently-passed stools proved more or less rapidly fatal, with symptoms of asphyxia. Mr. Richards concludes that the alvine discharges at certain stages of cholera contain a powerful poison, whose chief action is to enfeeble and destroy the function of respiration. The rapidity of its action excludes it from being an organism, and he thinks that it is a chemical compound, probably of albuminoid nature. It remains for chemistry to isolate the body, and for experiment to determine accurately its physiological action; but Mr. Richards thinks that it will probably be found to be easy to disinfect the evacuations by permanganate of potash. He admits that, although the poison decomposes, it might, by desiccation, retain its powers for some considerable time, so that clothes, etc., stained with choleraic discharges might be a source of danger."

From the above statement it is apparent that Dr. Vincent Richards conceives that the poison of cholera is of a *chemical* character, and his experiments were instituted with the view of isolating this virus, and communicating it to animals successively, but not, like Koch, searching for a cholera bacillus.

If epidemic cholera is essentially dependent for its existence and propagation, upon a peculiar bacillus, which can be easily destroyed by weak acid liquids, as stated by Koch, it would seem as though it might be easily cured if treated by acids in the early stage of the attack, and its spread more effectually prevented by disinfecting the discharges with acid disinfectants, than by armed sanitary cordons. Yet both have been tried many times, in epidemics of former years, with results by no means uniformly successful.

British Medical Association.—The fifty-second Annual Meeting of this Association, will be held in Belfast, on Tuesday, Wednesday, Thursday and Friday, July 29 to August 1, 1884. Local Secretary, John Moore, M.D., 2 Carlisle Terrace, Belfast.

SOCIETY PROCEEDINGS.

WARNING TO THE MEDICAL PRACTITIONERS IN REGARD TO THE USE OF JEQUIRITY.

BY M. LANDESBERG, M.D.

Read before the Philadelphia County Medical Society, May 21, 1884.

The medical journals have not failed to inform their readers that a new remedy has been introduced by Wecker into the oculistic therapeutics, which, by its prompt, energetic and sure action in trachoma and pannus, by far surpasses all the other methods of treatment ordinarily used in this affection. These glad tidings have been corroborated by the casual publication of notes and comments on the many excellent results obtained by Wecker and his followers by the new procedure, which consists of applying an infusion of jequirity, of a given strength, to the surface of the palpebral conjunctiva, in order to produce

rapid suppuration, and by means of the latter to promote absorption of the trachomatous infiltration. The method of treatment is based upon the same idea which led to inoculation of blennorrhæic pus in cases of pannus. I have not seen any medical paper at my command dwelling upon the great dangers in which the diseased eye is apt to be involved by the process of suppuration, and by the possible excess of reaction. I have not seen pointed out the fatal consequences which may develop in some instances. The glittering side of the question has only been made conspicuous, and it has not been considered worth while to show also the reverse of the medal. That this sin of omission may prove a source of trouble and mischief to some medical practitioners is obvious. The general physician is not in the position to follow all the intricacies of the experiments with the new drug. He relies for information on his medical journal, and the latter tells him of jequirity as the panacea in trachoma and pannus. Now suppose he just has such a case under hand, which had proved rebellious to the treatment with the usual remedies. He finds jequirity highly spoken of in his journal, and he avails himself of the opportunity to win by easy means the battle and the honors connected with it. And now it happens that he makes matters worse, that the very existence of the organ is endangered by the new treatment, the full recovery of which he has expected with such confidence! But I do not draw the picture from imagination; I do not speak of possibilities, but of facts that have already occurred. I relate incidents of the practical life which were communicated to me by general practitioners from different parts of our country. There was excess of reaction in some instances, and implication of the cornea in others. Besides, I have received letters in which physicians appealed to me for information concerning the action of jequirity and the expediency of using it in trachoma and pannus, urging me at the same time to lay before the profession the results of my experiments in the matter.

In answer to the many queries, by which I feel deeply honored, I have only to state briefly as follows:—

I have not had any cause to abandon my usual method of treatment in instances of trachoma and pannus, which has still given me the most satisfactory results even in the most obstinate and inveterate cases. My interest in jequirity has thus far been merely theoretical, and the successes reported from one side, and the failures brought forward by the other, have only served to uphold my position of objective observation. The question is by no means ripe for verdict. Only the future can show whether jequirity will gain a permanent place in the oculistic therapeutics, or will share the fate of the many other "new remedies," to sink into well-merited oblivion after a short period of dubious fame.

But if I cannot produce the results of my own trials with the use of jequirity in trachoma and pannus, I am able to give my experiences on the action of jequirity, which I have gained from experiments made by others. The issue of these experiments in nine cases, which came under my observation, indicates plainly enough the course the general practitioner has to take in regard to jequirity.

Of the nine cases above mentioned, the result of the treatment with jequirity was negative in five cases of trachoma and pannus. There was no improvement whatever, but no injury done either. Two cases presented with trachoma and pannus, deep corneal ulcerations, which were asserted to have developed during the treatment with jequirity. Before the latter had been started, the patient had enjoyed fair vision. One patient, with xerophthalmus of both eyes, suffered the loss of the right eye in consequence of panophthalmitis, which had set in on the fourth day after the application of jequirity. There was not the slightest improvement in the left eye. A girl who had done nothing for her eyes up to the time of the treatment with jequirity, presented herself six weeks later with the following conditions: Lids thickened; palpebral conjunctiva intensely swollen, covered thickly with large granulations, and furrowed with tendinous cicatrices. Both corneæ opaque and vascular.

GYNÆCOLOGIGAL SOCIETY OF BOSTON.

Stated meetings, Nov. and Dec., 1883. Wm. G. Wheeler, M.D., President, in the Chair; W. O. Hunt, M.D., Secretary *pro tem.*

(Nov.) A. P. Weeks, M.D., gave a detailed account of a case of *Acute Inversion of the Uterus*, which had occurred in his practice, followed by an essay, statistical and otherwise, upon the same subject.

Mrs. M., aet. 22, primipara, gave birth to a child at full term, in which, however, on account of ineffectual pains, the assistance of the forceps was required. A competent nurse rendered efficient help. After the birth, it was observed that the ordinary globular tumor, which the evacuated uterus forms in the hypogastrium, was becoming less firm and distinct, a digital examination discovered the placenta in the vagina; upon this, a brisk hæmorrhage set in. Renewed investigations made it evident that the uterus had inverted. The whole hand was at once carried into the vagina, grasping and compressing the fundus, meanwhile that the left hand supported the abdomen. Thus reduction was completely accomplished and with but little loss of time. The hand was retained in the cavity and ergot and ice employed until firm contraction took place. Patient made a rapid recovery.

The reader considered this a typical case, unattended with the usual complications of a rapid delivery, a short funis, traction of the cord, irregular compression of the fundus, or undue bearing-down efforts on the part of the patient, conditions which are regarded as the ordinary factors of the accident.

A condensed report of 25 cases followed; 6 occurred in primiparæ, 8 in multiparæ, others unknown; a physician was in attendance in 14, midwife in 7; traction of the funis in 6 cases; compression of abdomen, slight, in 1; no force applied as factor in 14; placenta adherent in 14; non-adherent

in 11; os contracted in one, dilated in 8; uterus firm in 6, flabby in 5; inversion reduced in 21, non-reduced in 4; recovered, 20; died, 5; one case occurred at 2 months, two at 4, and two at 6 months. A careful analysis shows that inversion is about equally liable to occur in primiparæ and in multiparæ; that the strong are victims of the accident as well as the weak; that it both complicates rapid deliveries and long, tedious labors; that it occurs alike in the hands of experienced physicians and of incompetent midwives; that traction and compression in delivery of the placenta, figure but slightly as determining causes; that it matters not whether the placenta is adherent or non-adherent.

Furthermore, we find that of these 25 cases, 17 occurred immediately, or within one half-hour after the birth of the child; but in only 9 of the 17 was the inversion discovered at once; as respects the former class, the interval of non-recognition varied from 2 hours to 3 days. Of the nine that were immediately recognized—of which only 4 were reduced at once—the remainder went unreduced, respectively, 4, 10, 11, 12 and 15 days, and when we say immediately, of the other four cases, we still allow a period of 1 to 7 hours. The mortality is great, being 23.05 p. c., the greater portion dying of shock, a few of hæmorrhage, and still a few of subsequent inflammation.

The treatment consists of immediate reduction; if the placenta be attached it should be separated and removed first of all, as thus the hæmorrhage is slight and the danger of mortality less.

The President, remarking upon this paper, recalled but three cases that he had seen in forty years' practice—one was his own, the others he had encountered in consultation. Considered it especially necessary to recognize the complication at the time of its occurrence. Believed the cervix fails to do its duty and, relaxing while the rest of the organ is contracting, the uterus is forced through. Did not believe the accident due either to traction on the cord or external pressure.

Dr. Marcy believed that faulty innervation might serve as an important element.

Dr. W. S. Brown, in all his experience, had never seen a case. Was surprised to learn it could occur at two months. Was always accustomed to use traction upon the cord.

Dr. Clark recalled a partial case seen with a midwife; child born, flooding, placenta attached; felt a cup-shaped depression at fundus, easily reduced. The midwife had used great external pressure and the labor had been very rapid.

Dr. Wheeler still believed his two cases due to inertia of the cervix; in the second case the fundus was wholly outside of the genitals, severe shock, no flooding. Had to keep his hand in position, after return of the organ, for two hours before he could get sufficient contraction, in the meantime using ice, ergot, alcohol, etc.

Dr. M. L. Brown had had a case within the past week. Child born before he entered the house, and husband said all was right, but he found the patient cold, nearly pulseless, forehead wet and cold—in a word, in a state of collapse. Upon vaginal examination, found cervix relaxed and fundus presenting in vagina, its projecting surface being firm and of wrinkled feel; reduction easily accomplished; no further trouble.

Dr. Church had often encountered inversion in the lower animals, in the mare, cow and sow; considered the cause an imperfect "make-up" of the animal.

Dr. R. L. Loring, corresponding member, agreed with previous speaker that traction was not a cause; Karl Braun uses traction and pressure; Mathews Duncan traces the accident to relaxation of the fundus which, being crowded down, is seized by the cervix like a child's head and extruded. Himself was disposed to look further and would suggest a possible unequal distribution of force in the uterine muscles, resulting in abnormal expulsive power.

Dr. Weeks responded and closed the discussion. Playfair imputes the fault to the accoucheur, while *per cont.* Sir Jas. Y. Simpson believed the condition beyond his control. Emmet attributes to too rapid delivery, to traction, pressure, assuming too soon the upright position. Lusk is positive that rapid delivery has but little to do with it.

Society adjourned.

Stated meeting, 2nd Thursday, December. President Wheeler in the chair, Henry M. Field, M.D., Secretary.

The chair announced the death of Dr. Marion Sims, of New York, an early and highly honored honorary member, and Drs. Warner, Marcy and Field were appointed a committee to prepare a proper memorial and present at the next meeting.

Henry A. Martin, M.D., read by appointment a paper on Listerism.

He began with a distinction between the germ theory and antiseptic surgery thereupon based, and Listerism. In the former he had his degree of confidence; the latter he regarded as one of the latest prevailing medical fashions and he had little respect for it.

Listerism, in its inception, had performed its service for the profession and the world—this he would not under-rate. It had converted many a former "murder-pen" of Europe into the modern cleanly and well-appointed hospital; it had substituted cleanliness and purity for dirt. On the other hand, it requires too frequent interference with the wound; and this is a grave fault in its method.

But, calling attention to what was before very generally known and only waiting to be put into operation, would never make a man famous. To bring fame it needed that a peculiar and largely absurd theory should be superadded; and it is this theory which chiefly constitutes Listerism. That Prof. Lister is earnest, and true, and honest, he did not doubt for a moment; but he did not see the inconsistencies which were presented to other minds which did not embrace his system; Hahnemann could never see anything calculated to upset his theories.

It has been proved that at a certain stage of animal decomposition a poison is developed, virulent and septic, which at a later stage seems to decompose

or consume itself and become innocuous. The reader showed at length and with force that this observation could not be made consistent with Listerian theories.

The former method with perforating wounds of the chest was to seal hermetically either opening; and the patient died under the treatment. Now that the wound is left open at both ends, kept clean, and effective drainage provided, the patient has a chance of recovery; no germicides are needed.

According to Prof. Lister, wounds ought to do very badly in a malarial atmosphere where the air must literally pullulate with bacteriæ; but, as matter of fact, wounds thus circumstanced do as well as elsewhere.

Again, observation of the relation of many of the so-called nuisances of the present day, both to public health and especially to the health of those who are directly engaged, *i. e.*, the employés, does not support Prof. Lister's theories. A certain suburb of Paris is devoted to the preparation of sewerage and excrementitious matters for agricultural purposes—such material being exposed to heat and other cicatrizing influences. The resulting smell is constant, intense, horrible; but wounds contracted in this pursuit do better, as a rule, than they do in Paris. Cholera did not invade this region at all upon occasions of late epidemics. A man named Ward set up a somewhat similar business some years ago in a portion of Roxbury; he was repeatedly complained of, most disastrous effects to the public health were freely predicted, and such apprehensions shared by almost everyone, physicians included; but he had hold of a good thing, was making money rapidly, and successfully resisted all efforts to disengage him—chiefly, however, because it could never be proved that the business had anything unhealthy about it. So with soap-boiling factories, where highly rancid fats are subjected to heat; the air does not appear to be vitiated so far as public health is concerned, and wounds contracted, by those engaged in the work, heal as well and as rapidly as under more pleasant circumstances.

In erysipelas, there is said to be a special or specific bacillus; but this Dr. M. very much doubted, because he had been able so often to cure the disease by means of no other agency than simply the rubber-bandage. A distinction should be made between erysipelas and simple erythema; the latter is the commonest occurrence after vaccination, and too often is diagnosticated as erysipelas. A pathognomonic condition of the latter is the presence of vesicles or blots; an erythematous eruption or blush, unaccompanied by this characteristic symptom, cannot properly be called erysipelas.

Dr. Martin was occupied in his argument close up to the hour of adjournment, the main features of which have been given in this abstract.

Society adjourned.

CHICAGO MEDICAL SOCIETY.

Regular meeting, held June 16, 1884.

The following paper, essay, and reports of cases were presented: On the Significance of Jaundice in Diagnosis, by Dr. Wm. E. Quine. The Effect of Noises Upon Certain Forms of Deafness, Dr. G. F. Hawley. A Case of Genito-Urinary Surgery and Median Lithotomy, Dr. Wm. L. Axford. Pathological Specimen of Papillomatous Ovarian Cystic Tumors, Dr. Charles T. Parkes.

The first paper, on the "Significance of Jaundice in Diagnosis," by Dr. Wm. E. Quine, of which the following is a brief synopsis:

After alluding to jaundice of obstructive and non-obstructive origin, and to the various theories that have been advanced in explanation of the latter, the writer succinctly pointed out that the attendant symptoms were mostly due to the presence of colorless bile acids, the bile pigment being harmless. Cerebral disturbance due to hepatic derangement, and associated with cholæmia, was not caused by the presence of normal bile, but by a different though unexplained species of toxæmia, although slight jaundice is often overlooked, and in some instances cannot be distinguished from cachexiæ, except by the discovery of bile acids in the urine. The diagnosis usually relates to the discovery of the cause, and not to the mere recognition of the effect.

1. Jaundice occurring suddenly, in apparent health, and painlessly, is usually of emotional origin, and transitory.

2. When it depends on disease or injury of the brain, acute atrophy of the liver, snake poison, or an infectious fever, it is always associated with mental disturbance.

3. If it be attended with fever, and well marked, it is secondary to inflammation of biliary passages, pneumonia, toxæmia, or infective inflammation of the portal vein.

4. If it occur suddenly, and is preceded by paroxysmal pain and vomiting, it is caused, nine times out of ten, by biliary calculi.

5. If it be preceded by typical symptoms of gastro-duodenal inflammation, it is obviously of catarrhal origin.

6. Impassable obstruction of the common duct is shown by great intensity of jaundice, clay-colored stools, and in recent cases by distension of the gall-bladder.

7. Jaundice caused by sudden obstruction of the biliary passages is always associated with paroxysmal pain and nausea, but there is no means of ascertaining the nature of the obstructing body, except its discovery in the stools.

8. In the rare cases of sudden obstruction by cancerous, hydatid and aneurismal tumors, there is almost always a history of impaired health, enlargement and deformity of the liver, ascites, etc., which, aided by the revelations of physical exploration, will lead to correct differentiation.

9. Sudden return of normal coloring to fæces confirms the diagnosis of obstruction.

10. Occlusion of the cystic duct may be attended with as much pain, nausea, and distension of the gall-bladder, as occlusion of the common duct, but there is no jaundice. In occlusion of the hepatic duct, the same symptoms are present, including jaundice, and excluding distension of the gall-bladder. It is often

impossible to distinguish between occlusion of the hepatic and the common duct. The former is rare because the duct increases in size from above downward.

11. If jaundice persist after the symptoms of biliary colic or catarrhal inflammation have a month since disappeared; or if jaundice have disappeared after a biliary colic, to return slowly and painlessly, it may be assumed that stricture of the duct has resulted from inflammatory thickening, adhesion of walls, or cicatrization of an ulcer.

12. A history of repeated attacks points to the probability of gall stones.

13. If jaundice come on slowly, without antecedent colic, or catarrh, and without attendant evidence of impaired health or portal obstruction, it is probably caused either by pressure upon the duct, or by the growth of a tumor within its walls. The pressing body, when large enough, may be readily appreciated, as in the case of pregnancy, ovarian tumor, aneurism, distended colon, etc., but when it is small, or constituted by enlargement of lymphatics in the fissure of the liver, it is apt to escape detection.

14. Slight but persistent jaundice may be due to incomplete occlusion of the common duct, or to complete occlusion of a branch of the hepatic; but usually it is found associated with either valvular disease of the heart, some disease of the lungs which obstructs circulation, or cirrhosis of the liver.

15. If ascites be associated with it, the disease is either cirrhosis or cancer of the liver. If the liver be abnormally small, the disease is cirrhosis; if it be large, the disease is either hypertrophic cirrhosis or cancer. Differentiation between the two is seldom attended with difficulty.

16. Absence of jaundice does not imply absence of hepatic disease, since the liver may be destroyed by disease, or extirpated by operation, without jaundice ensuing.

17. It is not a prominent symptom of hepatitis if catarrhal inflammation of biliary passages be rigidly excluded. It is not characteristic of hepatic abscess, where, at most, mere muddiness of the complexion is usually seen. These affections are rare in temperate climates, and when encountered, are generally found to be secondary to direct injury of the liver, or to infective inflammation of the portal vein. It is not a symptom of waxy or fatty liver, or of hydatids, excepting as an extraordinary complication.

DISCUSSION.

Dr. G. C. Paoli said, there is no doubt but in many serious derangements of the liver, few or no symptoms of jaundice are present. If so, they are passed unnoticed. In a clinical point of view, the paper is a most valuable one, and others should be written and cases presented. In scirrhus of the liver, oftentimes, there may be no pain and but light pigment deposit, in advanced stages of the disease. In other maladies, too, there will probably be but very little icterus, and no bilious excretions passed from the bowels. In a chronic state of the liver, where there is no organic trouble, we may pass by the yellow appearance of a conjunctiva, as, being a symptom of liver difficulty, and during the early stages of cirrhosis or cancer of this organ, we will probably not diagnose it.

Dr. S. H. Stevenson asked the writer to explain more particularly regarding cholesterine, and obstruction of the gall duct, if these conditions are toxic in effect, or if they produce cerebral disturbances.

Dr. J. J. M. Angear, who argued at some length, stated, that if the odor and clay-colored stools came from the large intestine, and this had nothing whatever to do with the bile or small intestine, then he could not understand why the liver excreted bile. To give mercury produces dark-colored, offensive stools, because why? it affects the large intestine and liver. Physiology tells us bile destroys the red corpuscles of the blood. If the coloring matter of bile, then, is nothing more than the coloring matter of the blood, then why not take the position, that, inasmuch, if bile be toxic, that some poison has entered the blood, and that the icteric condition of a conjunctiva and mucous membranes has nothing to do with the liver? why not, I say again, take the hypothesis that there has already existed a blood-poisoning? and closed by complimenting the writer on the many good points contained in his paper.

Dr. J. H. Etheridge inquired, if people at times who are laboring under mental emotion do not become greatly jaundiced? Is it not a fact that pigmentary substances contain more than one kind of coloring matter? Regarding those who are hurt or injured, when they become jaundiced, is it due to a vascular condition, or to reaction? or is the icterus due to a nervous condition or to shock of the nervous system, or to a change resulting from a condition of the vascular merging into a nervous system?

Dr. C. T. Fenn stated, in cases of hepatitis, that result fatally, a condition just after death resembling icterus will come on, due to the cause of death, namely, abscess of the liver. If this be so, he queried the reason of it?

Dr. R. Tilley and others debated the subject, and Dr. Quine closed, but would not attempt to answer all the questions, nor could he inform the members where to seek for the necessary information. But it has not been proven that bile is toxic, nor that cerebral disturbances result from it. The blood and secretions may be saturated for years, and no cerebral disturbance follow. And in cases of obstruction of the common duct, no phenomena of cerebral disturbance need develop. Regarding the secretory functions of the liver and feculent discharges, the theory advanced by one speaker is not sustained by the every day practitioner, although some remedies do increase the secretory action of the liver. Regarding jaundice not appearing in scirrhus, he thought this was erroneous. The paper did not dwell upon the conditions that are present in catarrhal jaundice, biliary calculi, nor congestion of the liver. The condition of insanity or emotional mental trouble is differentiated by the history of the case. Regarding Dr. Fenn's interrogatory, he did not know that jaundice occurred after death.

"The Effect of Noises upon Certain Forms of Deafness," by Dr. G. F. Hawley.

More than two hundred years ago Dr. Thos. Willis, of Amsterdam, described certain forms of deafness in which hearing was improved by noise, enabling persons to distinguish tones and sentences which at other times would be unheard. This symptom, bearing the name of Paracussio Willisiana, has been accepted by most aurists, but no satisfactory explanation as to its cause has been advanced.

While Politzer, Von Trollsch, and others, consider that it depends upon some change in the position of the ossicles or membrana tympani, many like Kramer take different views, and believe that it is due to a stimulating of the auditory nerve, thus forcing it to a more healthy action. Experience favors the theory that the middle ear is the seat of this symptom, that some change is brought about by the constant noise which restores the hearing for the time being.

What this change is, is still open to discussion. It may be of interest to relate the following case which came under the writer's observation while house-surgeon at the Golden Square Hospital, London. Mrs. H., aged 30, had for the last five years suffered with marked deafness in both ears. Common conversation was heard with difficulty except when any loud noise was present. At that time the hearing apparently was greatly improved. A watch could be heard on the left side only upon contact, and on the right at a distance of about two inches. The tuning fork showed no trouble of the acoustic nerve, but clearly indicated some disturbance of the middle ear. The drum-head was normal as to tension, color, etc. While perfect movability existed in the mallio-incudal joint. Nothing indicated anchylosis of any of the ossicles. The appearance of the throat was healthy and the eustachian tubes both patent. This is a good example of this form of deafness in which the symptom of hearing better in a noise manifests itself. Roosa, however, mentions two cases where the drum-head was more or less destroyed and still noises improved the hearing. The ossicles in both cases were intact. Politzer, in his work on Aural Surgery, states that this improvement is seen only in middle ear affections of an adhesive or sclerotic character, and regards it as a most unfavorable symptom for satisfactory prognosis. Roosa, on the contrary, states that it is found in many forms of ear affections, and does not necessarily forbid one from expecting favorable results from treatment. In his article on "The effects of noise upon diseased and healthy ears," he says, I have known two cases where this symptom occurred in patients who regained their hearing perfectly. While the symptom frequently accompanies incurable diseases of the middle ear, I believe it is a very frequent symptom in sub-acute cases where both ears are affected. Of course it would not be observed in disease of one ear only. Whatever may be the cause of this symptom, we are justified, the writer thinks, in believing that certain pathological changes are then present in the middle ear which will be found at no other time. If this be true, in what does the change exist? Willis considered the change brought about by the action of strong wave tone upon a relaxed membrana tympani to be the cause of this symptom. As long as the drum-head is in a relaxed condition it refuses to respond fully to wave impressions. It is no longer a perfect sound-conductor until its tension is restored. Noises by forcing air against the membrane press it inward, restore its tension, and hearing is improved until the pressure is removed, when deafness returns as bad as ever.

If this improvement were found only in such cases as he describes, we might accept his theory as correct, but unfortunately, as already stated by the writer of the paper, it is present with no change whatsoever in the drum-head. Therefore, in such cases at least, this improvement in hearing is due to some other cause. We have in the middle ear two other elastic membranes, one of which takes as important a part in conveying wave impressions as the membrana tympani. Any change by disease or injury would be fully as disastrous to normal hearing, *i. e.*: By this the writer means the membrane of the foramen ovale. When we consider the extraordinary fine shades of vibrations transmitted by this membrane to the fluids of the labyrinth, are we not justified in expecting that any loss of accuracy and precision on the part of the transmitting apparatus at this point will cause a corresponding loss of hearing power? According to Riemann the excursions of the stapes in the fainter tones are so small as to escape detection even with the highest power of the microscope. Therefore a corresponding sensitiveness on the part of the membrane must necessarily be present in order to appreciate and transmit these vibrations. Thus we see that any change in the membrana ovale which tends to hinder the passage of the vibrations to the fluids in the inner ear must cause diminution in hearing. If then the membrane from any cause becomes relaxed, and loses the power of responding to vibrations, it acts no longer as a sound conductor, but as a damper to any wave impressions. This is demonstrated in the case of relaxed drum-heads where inflation improves the hearing. Not only must this elastic plate (so-called by Politzer) be capable of responding fully to any wave impulse, but it must also bear a certain relation to the foot of the stapes, *i. e.*, a due amount of pressure must be applied by the stirrup and a sufficient resistance be afforded in every ear that possesses perfect hearing. If this is lost, deafness is the result. Chronic suppurative inflammation of the middle ear with destruction of drum-head, incus and malleus is a proof of the correctness of this statement. Hearing is here frequently improved by a false drum-head, which presses the loose stapes against the membrane of the foramen ovale, thereby restoring the relative positions of the parts. In a relaxed membrane the pressure of the stapes is wanting, due to an absence of resistance in the diseased membrane itself. Until we find some means of restoring this needed resistance, deafness remains. Thus, through the loss of elasticity in this membrane, we lose two important factors for perfect hearing. First, this membrane, like the membrana tympani, while relaxed refuses to act as a conductor of sound by not responding to vibrations given it; and, second, the proper relation between it and the stapes is destroyed, the necessary pressure and resistance being absent. We find in the

case of an atrophied drum-head that hearing is frequently improved by inflating the middle ear, which restores the tension of this membrane by forcing it outward. One might suppose that such inflation would likewise restore lost hearing if due to a relaxed membrane at the oval window. Unfortunately the act which might restore to this membrane its proper tension, forces it inwards as well ,and thus separates the stapes from it. Though the membrane may be in a proper condition for receiving and transmitting wave sounds, the stapes from the absence of any pressure applied by it to this membrane will be unable to perform its duty, there will be more or less obstruction to the passage of sound at this point. Whatever then restores the hearing in these cases must not only renew the tension of the membrane but maintain as well the relative position of health between it and the stapes. This, in the writer's opinion, can only be accomplished by some influence brought to bear upon the membrane and stapes from outside the middle ear. If now we consider the effect of wave impulses upon the membranes and ossicles, we can understand how a loud and continuous noise (as the writer thought) might improve the hearing where the deafness is due to such pathological changes as herein described. The air, set in motion by this noise, strikes upon, and pushes the drum-head ossicles inwards. This crowds the air in the middle ear against the membrana ovale, which if relaxed is made tense by this pressure. At the same time the relative position between it and the stapes as to pressure, etc., is also restored, and hearing for the time is therefore improved. The noise which would confuse with normal hearing is absorbed, so to speak, in removing the cause of deafness. In case of perforated drum-head the vibrating air acts directly upon the diseased membrane and stapes.

Von Trollsch mentions a case where a magistrate so afflicted improved his hearing by pressing a bit of stick against the drum-head. Allen also, in his work on Aural Surgery, states, while speaking of this symptom, that the hearing power was increased in a patient who presented herself with marked distruction of the drum-head, by pressing cotton against the ossicles. Another is also noted where large perforations existed. Here, before and after the healing of the perforation, hearing was improved by pressure.

Though these three cases do not in themselves place this theory beyond dispute, it may make it still worthy of further consideration.

It may encourage us to further investigations, which perchance may result in establishing beyond a doubt the cause of improved hearing in certain forms of deafness, by noise.

DISCUSSION.

Dr. S. J. Jones. This subject has been of much interest to pathologists, for different causes produce the condition alluded to in the paper, and it is not therefore always dependent on the same cause. A noise that may affect an abnormal ear will probably have no effect on the normal ear of a person. In some cases of relaxed condition of the stapes, the hearing power is increased by pressing cotton over the region of it. A tuning fork placed between the teeth in a state of vibration, is also better heard in the affected ear of some persons. Also, in placing the hand on a piano in the transmission of delicate sounds, the affected ear is oft-times excited to action by the sound.

Dr. R. Tilley did not accept the adopted theory of the essayist, although some people can hear better during the presence of loud noise. If, as is a fact, when a relaxed condition of the mucous membrane of the middle ear exists, and we inflate it, the person can hear practically well for ordinary purposes with patent eustachian tubes.

Median Lithotomy. This operation was performed by Dr. Wm. L. Axford, who verbally cited the history of the following case of genito-urinary trouble. An old man, ætat 66, of inherited gouty diathesis, occupation gardener, had been during the last year and a half a sufferer from repeated attacks of nephralgia, which could only be relieved by hypodermics of morph. sulph. gr. ¼. After several attacks this remedy seemed to have no effect in affording him relief, neither did suppositories of belladonna and other anodynes appear to have any control of the pain. He was also a sufferer from chronic cystitis. Some time since the patient was again seized with the kidney trouble and cystic, combined, which continued three days, his urine was voided in small quantities very often, as frequently as every five minutes part of the time. The bladder was full continuously, and catheterization was resorted to every six hours. This produced excessive pain, which continued in spite of large doses of opium, for four hours after. Hyperæsthesia of the urethra became very marked, and this procedure of using the catheter had to be abandoned. It was also ascertained that he had an enlarged prostate. As a last resort the operation for median lithotomy was done, which very much relieved him, and thus he was saved the torture of many catheterizations. A drainage tube was inserted, this had to be frequently removed and freed from the deposits of phosphates and retention of mucous. The urine was excessively ammoniacal and fœtid. But the patient survived only a few days. Autopsy, cirrhotic gouty liver and kidneys, cystitis of aggravated and obstinate form, enlarged prostate, etc.

The speaker thought he was warranted in making the median incision in the case he reported, and should do so again under similar circumstances.

Dr. C. T. Parkes supported Dr. Axford in what he had done in the case of cystitis—that these cases were best relieved in the manner just stated. He then briefly alluded to two cases of a similar nature, relieved by this method, that remained so for six months. Dr. Parkes then gave an interesting verbal report of a case, and also exhibited the specimen, which consisted of papillomatous multilocular cysts of both ovaries. The cysts had ruptured, and discharged their contents into the peritoneal sac. The history of enlargement embraces a period of only six months. The patient stated she never had an illness previous to the commencement of the abdominal enlargement. She has emaciated rapidly and to great

extent. The patient measured 44 inches in circumference at height of umbilicus. The greatest difficulty in the case was the differentiation between ascites and ovarian cyst. There was no œdema, nor had there ever been, of the lower extremities. Percussion gave dullness in all directions—lying, standing, or sitting, the only place of resonance being in the epigastrium. Fluctuation was very distinct on the slightest touch in all directions. Pelvic examination ascertained that fluctuation was not to be felt in the pelvis. By this was also determined the presence of a small growth about the size of the closed fist on the right side. The uterus was displaced forward, close behind the pubes; cul de sac of Douglas filled with foreign body. *Diagnosis.*—Ovarian tumor; ruptured sac; contents emptying into peritoneal sac. *Operation.*—22 quarts, or 44 pints of fluid were evacuated from the abdomen and tumors; fluid of a dark amber color. No large amount of lymph was precipitated in it after standing. Both ovaries were found diseased, there being present in the left side a ruptured papillomatous tumor. It still contained some fluid, which could not be pressed out at the site of papillary growth. The right one had not ruptured, but was bound down deeply in the pelvis by adhesions. The pelvis was filled by these tumors and their adhesions. After much trouble the tumors were enucleated and removed, which were, at this point of the speaker's remarks, shown to the members. The operation was done recently, and during the first four days the temperature of the patient had not reached 100° F. She was strong and cheerful, and she was doing well in every respect, but was not yet out of danger. Bleeding was quite free immediately after the separation of the adhesions, but soon ceased altogether under pressure with dry sponges. A drainage-tube was left in the lower end of the incision down to the bottom of the pelvis, anticipating free discharge from such an extensive raw surface. The drain was very free through it for two days. The sigmoid flexure of the colon was adherent for two inches to one of the cysts. For the past few days the temperature was normal.

Dr. A. R. Jackson remarked: The distension by the fluids, in this case, prevented the intestines from rising to the highest point in the abdomen; and it required, he thought, great skill on the part of the operator to differentiate such a case from one of ascites, hydronephrosis, or ovarian tumor, although before proceeding to operate, an examination of the fluid would have determined it to be ovarian or otherwise. Drysdale has made 2,500 examinations, and, with but one or two exceptions (the speaker thinks), has succeeded in finding the characteristic pathognomonic cell in ovarian cystic fluid. L. H. M.

DOMESTIC CORRESPONDENCE.

EFFECTS OF ALCOHOL.*

TO THE EDITOR:

Your first question:—"How does it happen that during its presence (that of alcohol), not only the products of combustion, but the sum total of all eliminations are diminished?" is premised upon a subtly devised sophism, and by the right of discovery I claim the opportunity thus afforded me—and with such an antagonist I may not soon find another—of asking, what proof can you bring forward in support of the assertion evidently conveyed by the question? Neither in lecture nor communication, have I attempted to show that the temperature of the body could be raised or lowered by the exhibition of alcohol. True, you mention that Anstie noticed a lowering of the temperature, and as you are no doubt well aware, this was in cases where complete stupor, or a condition of anæsthesia had been reached. As having a special bearing on this point, the investigations of Drs. Parkes and Wollowicz certainly occupy a front rank. From these authorities we learn that a healthy young man was given, for a period of six days, a quantity of alcohol varying from one to eight ounces daily—in diffused quantities—and subsequently twelve ounces of brandy daily, for three days, thermometric observations being made every two hours in both cases, with no perceptible decrease of body heat beyond that observed during a like period of water drinking. In support of these authorities, I might cite the statement of Rickard, who on one occasion gave as much as twelve ounces of brandy to one individual, and in "straight" drinks, without being able to note the faintest lowering of temperature.

Speaking to "the lessening of the eliminations," I know that Böcker and Hammond are of opinion that alcohol and beer tend by their use to lessen the formation of sulphuric and phosphoric acids, urea and the extractives, while diminishing the water and acidity of the urine. But, opposed to this, we find Parkes and Wollowicz declaring that neither alcohol, brandy, nor claret produce any decrease in the elimination by the urine of urea, phosphoric acid, or free acidity. That the latter investigators have the weight of evidence on their side, at least as regards acid reaction, can be easily proven by any practitioner, at the expense of a few strips of litmus. Indeed, the writer can offer nearly a thousand insurance examinations, during 1880–81, made among a class of men who in moderation or otherwise were accustomed to the use of alcohol,—as proof that their indulgence did not materially lessen acidity of the urine. In the majority of these tests only litmus was used, but in many of them a quantitative as well as qualitative analysis was made.

Your partial admission that alcohol tends to bind up the albuminous material of the body in new combinations, sufficiently answers the question referring to M. Dupre's experiments. If by its affinity for certain tissues, alcohol seeks to protect those tissues from impending destruction, for so long a period as several weeks, and then leaves them unimpaired, and itself remains unaltered, as you would have your readers infer, we cannot but praise the spirit for its evident good behavior while in the system. When we consider that the most recent investigations teach us to regard the oxidation of albumen as the necessary prelude to the formation of fibrine, and the oxi-

dation of this constituent of the muscles and blood as leading to the production of colloidal material, the importance of even the catalytic or mechanical action of alcohol is at once made manifest. In short, if disease be regarded "not as a foreign entity, which takes up its residence in our tissues, producing disturbance and destruction, by a new and foreign material, but rather as a misdirection given to our normal functions, by agents other than 'minute organisms,'" it is certain that though alcohol may not claim a place in the healthy body, it can with propriety be given a place in the diseased one. "The eucalyptus tree makes sweeter the heavy air of the Campagna, and the maggot in the putrid mass but purifies it." In like manner may not the much abused, because so little understood, alcohol serve by its mere presence to tide the tissues over the point of impending destruction by the mechanical or molecular combinations you suggest.

The concluding hint that, if pushed to a logical result, my argument would place alcohol, opium and tobacco in the same category, might be answered by quoting the Duke of Argyle, who in a recent work, tells us that: "The world is the correlation, the fulfilment and the sanction of the instincts, capacities and longings of psychic existence." Indeed, the consciousness of a reserve power in man, argues future opportunity for its adequate exercise, and though man in satisfying this longing may reach the very limit of this reserve power, as regards his appetites, and transcending the limit of proper indulgence, trespass upon the domain of license or abuse, of alcohol, opium or tobacco, such abuse is no more argument against their legitimate use, than citing the gluttonous feasts of classic or medieval days, would be an argument against the modest spread of a Chicago physician. Yours respectfully,

P. H. Cronin, M.D.

N. W. Cor. N. Clark and Oak Sts.

*The above communication, the receipt of which immediately followed the publication in our issue of May 3, of a letter from Dr. Cronin and some queries addressed to that gentleman by the editor of this Journal, has been unavoidably crowded out of our columns until now, by the unusual press of matter requiring space in the Journal during and after the meeting of the Association.—Ed.]

MISCELLANEOUS.

OFFICIAL NOTICE.

Annual Dues from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the Journal of the Association for one year.

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According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership. Richard J. Dunglison, M.D.,

Treasurer.

Lock Box 1274, Philadelphia, Pa.

Good Location.—I have an established practice of twenty-five years, and will retire in the favor of the purchaser of my house, furniture, office, instruments, library, barn and team.

Care of this Journal. E. Knowlton.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department United States Army, from June 25, 1884, to July 3, 1884.

Hartsuff, Albert, Major and Surgeon, (Fort Riley, Kansas,) granted leave of absence for one month with permission to apply for one month's extension, to take effect when his services can be spared. (Par. 6, S. O. 130, Headquarters Dept. of Mo., June 25, 1884.)

Middleton, J. V. D., Major and Surgeon, ordered to relieve Surg. B. E. Fryer from duty as Post Surgeon, Ft. Leavenworth, Kan., on or before July 1. (Par. 5, S. O. 133, Headquarters Dept. of Mo., June 25, 1884.)

Dickson, Jno. M., Captain and Assistant-Surgeon, assigned to duty as Post Surgeon, Alcatrag Island, Cal. (Par. 3, S. O. 71, Headquarters Dept. of Cal., June 19, 1884.)

Girard, A. C., Captain and Assistant-Surgeon, granted leave of absence for six months, with permission to go beyond sea. (Par. 11, S. O. 148, A. G. O, June 26, 1884.)

Girard, J. B., Capt. and Assis't-Surgeon, ordered to relieve Surg. W. E. Waters from duty as Post Surgeon, Plattsburg Bks., Plattsburg, N. Y. Surgeon Waters, upon being relieved, directed to return to his proper station, Madison Bks., N. Y. (Par. 3, S. O. 131, Headquarters Dept. of East, June 30, 1884.)

Benham, R. B., First Lieutenant and Assistant-Surgeon, from Dept. of Dakota to Dept. of Texas.

Gorgas, Wm. C., First Lieutenant and Assistant-Surgeon, from Dept. of Texas to Dept. of Dakota. (Par. 8, S. O. 150, A. G. O., June, 28, 1884.)

Wales, Philip G., First Lieutenant and Assistant-Surgeon, from Old Fort Colville, Wash. Ter., to Fort Cœur d'Alene, Idaho. (Par. 3, S. O. 89, Headquarters Dept. of Columbia, June 23, 1884.)

List of Official Changes in the Medical Corps of the Navy, for the Week Ending July 5, 1884.

Surgeon H. M. Wells, detached from Naval Hospital, Brooklyn, ordered to U. S. S. "Lancaster."

Dr. J. S. Sayre, Dr. F. J. B. Cordeiro, appointed Assistant-Surgeons. Commission dated 27 June, 1884.

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ORIGINAL ARTICLES.

IRREGULAR APOPLECTIC ATTACKS, DUE TO OTHER CAUSES THAN HÆMORRHAGE AND EMBOLISM.

BY GASPAR GRISWOLD, M.D., M.R.C.S.

Presented in the Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The term "*apoplectic attack*" is employed in the title of this paper to denote the sudden onset of a train of symptoms in which unconsciousness, hemiplegia and convulsions are more or less prominent. Many writers have used the word apoplexy to express a certain form of hæmorrhage, as in the terms *renal apoplexy* and *pulmonary apoplexy;* in this paper it will not be used in that sense, but will always be taken to mean the symptoms described, without reference to their causation.

The investigations of modern pathologists have clearly established the relation of apoplexy to the various forms of cerebral hæmorrhage, embolism and thrombosis, and have enabled us to distinguish between those conditions with considerable accuracy. We now understand that unconsciousness is usually most profound in cerebral hæmorrhage; that consciousness may be preserved in embolism, even where hemiplegia is well-marked; and that in meningeal hæmorrhages unconsciousness and convulsions may occur, and yet hemiplegia be ill-defined. These differences, and many other important facts, have been abundantly verified by *post-mortem* examinations, and the diagnosis of organic brain disease has in the last few years been put upon a very satisfactory basis. When, however, we come to study the symptoms which are produced where the circulation of the brain has been disturbed by functional causes, instead of by organic lesions, we are at once met by difficulties. Hæmorrhage, thrombosis or embolism is easily determined by *post-mortem* examination, but it is often impossible at an autopsy to decide whether the brain was anæmic or hyperæmic just before death. Moreover, cases of functional disturbance of the cerebral circulation, even when sufficiently severe to cause the most alarming symptoms, rarely terminate fatally. *Post-mortem* examinations, then, which have done so much to clear up everything connected with organic brain disease, can assist us very little in studying those affections which depend merely upon functional irregularities in the cerebral blood supply. Whatever information we have on this subject is mainly the result of experiments and of clinical observations, and may be summarized as follows: 1st. Sudden *anæmia* of the brain causes unconsciousness and convulsions. This anæmia may be produced by failure of the heart's action, by pressure upon the carotids, or by the action of the vaso-motor nerves. The vaso-motor nerves may act in two ways to cause anæmia of the brain: first, *directly*, by causing contraction of the cerebral arteries; second, *indirectly*, by causing dilatation of the abdominal blood-vessels, thus lowering the general blood-pressure and draining the blood from the brain into the vessels of the trunk. 2d. *Venous hyperæmia* of the brain, through the privation of oxygen which it involves, has the same effects as anæmia. 3d. *Arterial hyperæmia* of the brain is more difficult to produce artificially than the preceding conditions, and has been less carefully studied; modern pathologists are inclined to look upon it as a rare and comparatively unimportant event. This is in marked contrast with the views of our ancestors, with whom *active cerebral congestion* and *congestive apoplexy* were much talked of; modern observation, however, has proved that convulsions, dizziness and similar symptoms, which were formerly attributed to a rush of blood to the head, are in reality much more frequently dependent upon cerebral anæmia. This short summary of what physiologists and clinical observers have been able to teach us about the effects produced by variations in the cerebral blood supply is sufficient to show us in how many ways apparently remote influences can cause anæmia or hyperæmia of the brain, and how difficult it is to formulate the symptoms which may follow. The best understood of all the diseases depending upon disturbance of the brain circulation, and the one which has been most thoroughly studied, is epilepsy. A typical epileptic seizure is ushered in by contraction of the cerebral arterioles, the face becoming pale and the pupils dilating; unconsciousness follows, the patient falling to the ground in convulsions which are at first tonic, and then clonic. The convulsions last one or two minutes, and are succeeded by a condition of lethargy or semi-coma, which usually terminates in from ten to forty minutes; the patient then returns to his normal condition until the occurrence of the next paroxysm. Such a picture is not hard to recognize, and a diagnosis is usu-

ally easy. But suppose, from the same causes, we have an attack in which the ushering-in convulsions are so indistinct as to escape notice—nothing but a rolling up of the eyes or a few twitches. Suppose the unconsciousness lasts for hours, and is so profound as to merit the name of true coma—the patient cannot be roused, his pupils are dilated and do not respond to light, his breathing is stertorous and his face is cyanosed. If to these symptoms we add the transient hemiplegia which is occasionally seen with epilepsy, the condition will imitate apoplexy from organic lesion almost too closely to admit of detection. Attacks of vertigo from stomach disorder are very common, and are not often mistaken for anything else; but occasionally cases are met with in which the same conditions are in some way aggravated, and instead of vertigo, we find profound stertorous coma. Such cases, at first sight, and even after careful examination, often present all the symptoms which usually indicate grave organic lesions, and a correct diagnosis is rarely made until the sudden recovery of the patient points the way to it. And so in many ways, and under a variety of circumstances, apoplectic attacks may occur, so severe as to seemingly warrant the gravest prognosis, and yet terminating in recovery so suddenly as to make the existence of any organic lesion extremely improbable. It is well established that the symptoms which attend cerebral hæmorrhage, embolism and thrombosis, are mainly due to the disturbances of the intracranial circulation which they produce—in the case of hæmorrhage, by pressure of the clot on the surrounding tissue; in the case of embolism and thrombosis, by occlusion of the vessels of supply. Since disturbance of circulation is the essential factor in the process, it is not strange that similar symptoms should be produced, whether the blood current be obstructed by an embolus or by contraction of vessels—whether anæmia be caused by the pressure of a clot or by failure of the heart. A marked difference between the two conditions presents itself, however, when the persistence of organic lesions is compared with the rapid disappearance of functional irregularities. This subject may be most appropriately discussed in connection with the following illustrative cases, all of which were seen by other physicians, either accidentally at the time of the attack, or in consultation with the author. In all of these cases, an erroneous diagnosis was made at first by the author, or by a physician who was called in before him.

CASE NO. I.—*Apoplectic attack from cerebral anæmia following exhaustion and overwork.*

T. B., a young gentleman 24 years of age, finely developed, and who had always enjoyed excellent health, became exhausted from overwork during the hot weather in August, and passed some sleepless nights worrying about business. Returning home one evening much fatigued, he suddenly fell back unconscious. A servant, who is more than usually intelligent, was in the room at the time and observed no convulsive movements. All efforts to rouse the patient being of no avail, the author was sent for, and found the patient profoundly comatose, making no sign when pinched or when ammonia was held to his nose. The breathing was stertorous, and the face cyanozed. The pupils were dilated, but not unequal. There was no evidence of any paralysis. The urine, drawn with a catheter, was in all respects normal. After the coma had lasted two hours, the patient recovered consciousness gradually and without nausea. His mental condition from this time on until his recovery—a period of five days—was very peculiar. It resembled very closely the delirium of fever. He would hold conversations with imaginary people, mistook his attendants for his sister or mother, and raved about his affairs, believing himself to be at his office. During all this time his temperature and pulse were invariably normal. He could walk feebly with assistance and gave no evidence of paralysis or any tendency to rotatory movements. Sensation was normal. The tongue when protruded did not deviate, and there was no aphasia. Examination of the retina and ear revealed nothing abnormal. The heart and lungs seemed healthy. The case was seen in consultation by Dr. George L. Peabody, and was very thoroughly examined. On the morning of the sixth the patient awoke with his mind perfectly clear; he presented no further symptoms and at once regained his health. He has remained well during the two years which have elapsed since that time. The author's first diagnosis was a probable slight hæmorrhage into one of the posterior lobes, basing this opinion upon the presence of coma followed by obscured intelligence, without any effect on motion or sensation. He now believes that the apoplectic attack was due to sudden anæmia of the brain, and that the subsequent mental impairment was due to the same cause in a less degree, and analogous to the delirium of inanition or starvation.

CASE NO. II.—*Apoplectic Attack Apparently Due to Retrocedent Gout.*—Mrs. S., a lady 60 years of age, and for fifteen years a sufferer from gout in the toes and fingers. She usually has four or five attacks in a year, and is always able to predict their coming by the appearance of prodromal dyspeptic symptoms, and marked diminution in the quantity of urine. In November last, while experiencing the usual prodromata and expecting an attack of gout at any moment, she suddenly became unconscious, falling to the floor. The nearest doctor was sent for at once, and on hearing the history and finding a gouty old lady comatose and hemiplegic, without hesitation gave an unqualified diagnosis of cerebral hæmorrhage, with a corresponding prognosis. The author saw the patient some hours afterward, when she had regained consciousness. She was still hemiplegic, the face, however, remaining unaffected. There was no anæsthesia. The tongue did not deviate, and there was no aphasia.

The lungs, heart and kidneys seemed normal. At the end of twenty-four hours her symptoms had all disappeared, and she experienced that relief from dyspepsia and scanty urine which was usual after gouty paroxysms affecting the joints. Since then she has had one attack of gout in her toe, but in all

other respects has been well. This case is analogous to those described by Garrod, in which coma or hemiplegia occurs after prodromal gouty symptoms, and seems to take the place of the joint manifestations. Gouty deposits of urate of soda have never been found in the brain or its membranes, hence these attacks do not seem to be, strictly speaking, a transfer of the morbid process from the joints to the brain. They probably depend upon some disturbance of the intra-cranial circulation, which is sufficient to cause symptoms, and yet does not involve the production of tophaceous deposits.

Case No. III.—*Apoplectic Attack from Stomach Disorder.*—Mr. W., a gentleman 56 years of age, habitually enjoys good health, but is apt to occasionally overwork himself. He returned home one afternoon very much fatigued, and went to his room to dress. The servant who came to announce that dinner was served received no answer, and on looking into his room saw him in an arm-chair, apparently asleep. On advancing to wake him she noticed that he was breathing heavily, and presently saw that his clothes were covered with matters which he had vomited. Two doctors were called at once, who found him profoundly comatose, with stertor and cyanosis; they made a diagnosis of cerebral hæmorrhage, with a grave prognosis based upon the very deep coma. After another hour the patient began to regain consciousness, and although he remained for awhile somewhat dazed, yet at the end of four or five hours from the time of his first seizure he was fairly himself again, and spent a good night. The next morning he arose and dressed himself as usual, and has been well ever since; it is now three years since the attack. In this case we have sudden unconsciousness, along with the vomiting of a large quantity of undigested food, which had been eaten at least five hours before, and should have been absorbed by that time if the stomach had been normally active. Profound coma was present for two hours, followed by three hours of mental confusion. At no time was there any appearance of paralysis; and as no one saw the commencement of the attack, it is impossible to say if any convulsions occurred at that time. Examination of the heart, lungs, and kidneys, gave only negative results. This seems to be an instance where stomach disorder produced symptoms of which vertigo is simply a lighter shade, differing only in degree. No hæmorrhage ever produced more profound coma than was present here for two hours, and yet the patient was well the next day and able to attend to business.

Case No. IV.—*Apoplectic Attack—Cause unknown.*—Mr. E., a merchant, 28 years of age, enjoys good health and is an active business man. One evening he was taking supper at a restaurant, having been to the theater. As he rose to put on his overcoat, he suddenly fell to the floor unconscious, no convulsive movements being observed by the friends who were with him. A physician was called at once, and finding him still comatose with his right side paralyzed, pronounced the case to be one of cerebral hæmorrhage or embolism. The author saw the patient two hours after the first attack; he had by this time partially regained consciousness, but was still hemiplegic, the face, however, being unaffected. Sensation was normal, or nearly so. There had been no vomiting. The tongue did not deviate when protruded, and there was no aphasia. Physical examination disclosed no disease of the heart, lungs or kidneys. The patient passed a quiet night, and when he awoke all the symptoms had disappeared. This occurred several months ago, and he has been perfectly well ever since. In this case we have sudden unconsciousness with hemiplegia, and the resemblance to cerebral hæmorrhage or embolism is at first altogether deceptive. We have here a fair type of what used to be called congestive apoplexy. Trousseau describes a number of such cases and believes them to be essentially epileptic. They differ from ordinary epilepsy in the slightness of the ushering-in convulsion, which is apt to escape the notice of friends and bystanders, and in being followed by deeper and more prolonged unconsciousness. When there is added the transient hemiplegia which occasionally occurs with epilepsy, it is almost impossible, as in the case just described, to distinguish the attack from one of cerebral hæmorrhage. The author saw a case two years ago which, during the first few hours, was the exact counterpart of the one just described. The age, the circumstances, the mode of onset, and the subsequent symptoms were identical even to the smallest detail. The author is confident that with those two patients before him to-day, side by side, he would be unable for four or five hours to determine in which an organic lesion was present. And yet one case recovered completely in twenty-four hours, and the other, though still living, is paralyzed to this day.

In conclusion, it may be stated that a positive diagnosis of organic lesion cannot with safety be made very early in any apoplectic attack, since the symptoms presented do not differ in kind or in degree from those which *may* be produced as a result of functional disturbance. The persistence of the symptoms seems to be the only reliable criterion. An exception to this statement may be made in favor of inequality of the pupils, which has never, to the author's knowledge, been observed with functional apoplectic attacks. The presence of this sign, associated with apoplectic symptoms and not dependent upon local eye trouble, may be taken as positive proof of the existence of organic lesion.

Dr. Janeway reported two cases of apoplectic attacks produced by excessive smoking. In these cases the attacks were not repeated after the patient gave up the habit of smoking.

Dr. A. Flint, Jr., referred to some of his experiments on animals, which went to show that cutting of the circulation of the brain was liable to produce convulsions. This he attributed to the anæmia of the brain rather than to the interference with the respiratory centres. He thought that the profession was coming to pay more attention to the effects of variations of the intra-cranial circulation than it had previously done.

THE NEW OFFICINAL CHLORATE.

BY TRAILL GREEN, M.D., EASTON, PA.

Read in the Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The introduction of the chlorates of the stronger alkaline metals makes an important era in therapeutics. The potassium salt was first used in medicine toward the close of the last century, but was not well known by the profession before the middle of the present century. Its properties and uses were well considered by our Chairman before this Section in 1882, and a paper was read by him on its uses in scrofula in 1880. All the journals have contained articles on this salt, and have given us various formulæ for its administration. It is safe to say that its properties and uses are now well understood. Every member of our profession can testify to its useful properties as a therapeutic agent, and all the younger practitioners must wonder how without this remedy we treated the various diseases in which we find it now to be so effectual, such as diseases of the mouth and throat.

The potassium salt was made officinal when the Pharmacopœia was revised in 1850, and the sodium salt in the revision of 1880. This addition to the Pharmacopœia of 1880 I shall show was a very important one.

Sodium chlorate was first described by M. Chenevix, (Thompson's Chemistry of Inorganic Bodies, vol. II., p. 449). Having discovered its great solubility, I was led to the use of it in 1866, and I soon observed its excellent properties in the diseases in which the potassium salt had been used. In 1870, I called attention to it before the Medical Society of Pennsylvania. (Transactions of the Medical Society of Pennsylvania, 1870, p. 141). Since that time I think many practitioners have used the sodium salt, who had previously used the potassium chlorate, and they testify to its greater efficacy. I see cases constantly which prove its superiority. It is very well known that the potash salt is freely prescribed in almost every family *without the advice* of the family physician. I am called very frequently to prescribe for cases so treated which have remained ill for some time under suitable doses of the potash salt.

Under the use of the sodium chlorate I find such attacks yielding very soon. I observe the same result very often in office patients who have in like manner used the potassium chlorate. The superiority of the sodium salt is now so well understood in the families in which I prescribe, that they are in the habit of sending to me for it rather than to trust to that which they had been accustomed to use.

Having observed the good effects of the sodium chlorate in various inflammations of the mucous surfaces I was led to use it in cases of inflammation of the skin produced by rhus toxicodendron, and I found it very effectual, its early use arresting the inflammation very speedily, and when the inflammation had advanced before I was called to treat it I found that it allayed the itching and burning, and hastened the healing of the inflamed parts. In cases of this kind I have used four to twelve grams of the salt to 500 cubic centimetres of water (one to three drachms to a pint of water.) For about 18 years I have not used any other remedy for this annoying disease, and I see a great many cases of it, and I may say that I have received the testimony of physicians residing in different parts of the country to its pleasant effects in cases of this kind.

In the same article in the Pennsylvania Society's Transactions for 1870, I called the attention of the members to its usefulness in inflammations of the mouth and throat.

For the same period I have used this salt with great comfort to the patient, and with good therapeutic results in erysipelas, a solution of eight to twelve grams to a litre of cold water. I keep cloths wet with it constantly applied to the inflamed surface. I have not found any remedy so soothing in the itching and burning sensation so common in scarlatina—sponging the surface with a solution of the strength just named.

It is well to remember that in using the chlorates externally, we must be careful to keep cloths from the fire, which have been saturated with them, and have become dry, as such cloths are easily ignited, and burn with great activity. I have known cases of severe burns to occur in this way.

In conjunctivitis and inflammations of the eyelids, a solution of four grams to 500 c.c. of water I have used with great success. I have found it useful in all the inflammations which occur in the skin and in the mucous surfaces terminating in the skin, inflamed piles, inflammations of the external ear, the mouth and nostrils. I have not found any remedy so effectual in nasal catarrh, using a warm solution, four grams to 500 c.c. of water.

It is scarcely necessary to occupy the time of the section with extended remarks on all the different diseases in which I have found this salt beneficial. I may say that there are no cases in which the potassium salt has been found useful that will not be more rapidly cured by the sodium salt.

Its greater solubility than that of the potassium salt of itself commends this remedy; it being soluble in 1.1 parts of water, while the other salt requires 16.5 both at 15° C or 59° F. The advantage of this will be seen when in the case of children it is desirable to have the quantity of the solvent small, or when used as a lotion that we may have it of sufficient strength without having to use too much to accomplish the desired object. I think we fail in diseases of the mouth to effect cures with the other salt, because the strongest solution is not of sufficient strength to produce a local effect. This will relieve us also from all apprehension of crystals of the salt being formed in the kidneys. I know that some physicians have fear that this may occur when the other chlorate is used. I remember that on one occasion when speaking of its properties before a medical society, the question was asked by an intelligent physician in large practice, whether any injury was done to the kidneys from the use of this salt; from

which it appears some physicians do apprehend unpleasant effects from the potassium chlorate. I believe this fear is without foundation, but those who have it may be assured that no such trouble can result from the use of a salt so soluble as the sodium chlorate. After using it freely for many years, I can say that I have never observed any symptoms that indicated trouble in the kidneys from it.

Further, I believe it is well understood that sodium salts are more pleasantly received by the system than are those of potassium. I am well persuaded of this by all my reading on this subject from the time of my entrance upon professional life. Besides, the compounds of this metal, as shown by Verdeil,[1] exist in the blood in the proportion of 64.12 to 12.70 of potassium compounds, from which it might be supposed the compound most abundant in the blood would be received by the system with greater toleration. There is abundant evidence that this is true of the external application of the two substances in the form of their compounds. Of this we have had recent experience in the good effects of bi-carbonate of sodium in the treatment of burns. The corresponding salt of potash would hardly be prescribed as a suitable remedy in the treatment of a recent burn. I see from time to time that the profession is learning that sodium iodide and sodium bromide are better tolerated by the system than are the corresponding salts of potassium. The heart and the stomach are less disturbed by the compounds of one of these metals than by those of the other. I say the profession is coming to the belief that several of the potash salts are not so kindly received by the system as are the corresponding salts of soda. While preparing this paper during the last month I met with an interesting article by Dr. H. W. Berg, in the *Archives of Medicine* for the same month, on the substitution of iodide of sodium for potassium iodide, which is applicable to the subject of this paper. The potassium salts weaken the action of the heart. Bogolepoff, as quoted by Dr. Berg, has shown that sodium iodide produces no such effect on the action of the heart, and Boehm that the same is true as to the cardiac muscles or ganglia-muscular tissue cut from a living animal and placed in a solution of potassium chloride of the strength of two or three per cent. the muscular fibres immediately lose their irritability. If the muscle has not been immersed in the potassium chloride too long, immersion in a sodium chloride solution will restore the irritability of the muscular fibres. Kühne has shown that when healthy muscular tissue is placed in a solution of sodium chloride its irritability will be preserved for a much longer period than it is in a solution of pure water. Kühne has also shown that while potassium chloride has a paralyzing effect upon muscular and nerve tissue with which it comes in contact, sodium chloride restores and preserves the irritability of muscular and nerve tissue to which it is applied.

I refer also to Prof. H. C. Wood's Treatise on Therapeutics, 5th edit., p. 499. The most marked action of the potash salts is upon the heart. When a frog is killed by a salt of potash, the heart is arrested in diastole, according to both Podocaepow and Guttman. The blood-current before death is greatly lessened in force, as was determined by Podocaepow by watching the circulation in the web, and by comparative experiment in regard to the rate at which blood flowed from wounded vessels in poisoned and unpoisoned frogs. In mammals, potash influences the heart even more markedly than in cold-blooded animals. Ten or fifteen grains of the chloride, quickly injected into the jugular vein, suffice to produce instant cardiac death. The action of a poisonous dose of potash upon the heart appears to be a local one.

By an elaborate series of experiments, Drs. Ringer and Murrell have shown that the potash salts in sufficient concentration act powerfully upon the cerebrum, the motor and sensuous nerves, and the muscles; in a word, that they are poisonous to all the higher forms of tissue.

Although the effects of large doses of compounds of potassium on the heart appear to be made out, definite knowledge is still wanting in regard to small doses. Traube asserts as the result of his experiments, that, injected into the blood in doses of two or three grains, the nitrate of potassium produces a fall in the pulse and a rise in the arterial pressure. Aubert and Dehn have experimented with a number of the salts of potash, and found, that with the exception of the permanganate, they all act upon the circulation in the manner just described.

Ringer and Murrell, applying the chlorides, iodides, and bromides of potassium and ammonium directly to the ends of the different nerves, found that they paralyzed, the effect of the potash salt being much the most harmful and permanent, that of ammonium the next, and that of sodium the least. When a potassium salt is given in large doses for a long time, it produces a condition of dyscrasia, with impoverishment and excessive fluidity of the blood.

Dr. Wood, ibid., p. 509, says of the chlorate of potash: "Upon mucous membrane and ulcerated surfaces this salt acts as a powerful irritant, being, I think, even more active in this respect than the nitrate of potassium. Owing probably to its irritant influence, when taken internally in sufficient quantity it acts as a poison, although Dr. Tully is said by Stillé to have taken an ounce without injury. It is possible that, as with the nitrate of potassium, free dilution may affect the toxic properties. However this may be, it is certain that the chlorate of potassium has in a number of instances caused death. In Dr. Fountain's case an ounce of it produced almost immediately copious diuresis, followed after a time by persistent suppression of urine and marked symptoms of gastro-intestinal inflammation, with death on the seventh day. It is probable that in diphtheria deaths attributed to the disease have often really been produced by the chlorate. The minimum fatal dose is unknown, but a drachm given in the course of a night has killed an infant under a year old, and 3 drachms given during a day a child 3 or 4 years old." (New York *Medical Record*, 1878. Consult also New York *Medical Record*, 1879, I, 243; II, 454.)

[1] Ann. der Chem. und Pharm. Band lxix, p. 89. Quoted by Dr. Carpenter. Principles of Human Physiology. Chap. IV.

Of sodium Dr. Wood writes, p. 610: "Unlike potassium, sodium and its salts have very little influence upon the higher animals."

Upon the blood the immediate influence of the soda salts is very slight, for Podocæpow asserts that one part dissolved in twelve parts of blood does not affect either the physical characters of the red corpuscles or the intensity of the ozone reaction.

Both Podocæpow and Guttman assert that even the largest doses do not sensibly affect the heart or the temperature; and the latter observer further declares that they are without influence upon the nerve-centers, the peripheral nerves, or the muscles.

The fact that soda in moderate amount has no depressing action, and indeed very little, if any, influence upon the general system, renders it preferable to potash in cases of acidity of the primæ viæ. It is, *par excellence*, the alkali for dyspepsia.

The knowledge of the physiological action of the compounds of sodium, prepares us to answer the question proposed sometimes by the families in which we prescribe concerning the preparations of sodium used in the culinary department. We certainly need not hesitate to say that, so used, we need not fear that the health of our clients will be affected. We learn from the study of the physiological action of potassium compounds, that the unprofessional use of chlorate of potassium, so common now among our people, must lead to the injury of the health. It is quite too common to find active remedies in the hands of those who know nothing of their properties, and still less of the nature of the diseases for which they use them. It will be well to exhort our friends to do themselves no harm by the use of those things of which they have no knowledge.

As therapeutists we certainly are so far ready to accept what is stated as to the effects of the potassium salts that we would not think it safe to use them in debilitated conditions of the system, and we assuredly can understand that their physiological action is such that their effect upon the muscular coats of the stomach, and the muscles of the heart, from long continued use must make such use unsafe in persons of more vigorous health.

From all that I have learned of the properties of the salt to which I have called the attention of the section, I feel assured that any one who will use it for a short time, will be so much gratified with its properties and action that he will never omit its use for that of the potassium salt.

ON SURGICAL TREATMENT OF GANGRENE OF THE LUNG.

BY DR. CH. FENGER, OF CHICAGO.

(Read before the Illinois State Medical Society in May, 1884.)

Since Mosler's drainage of a tuberculous cavity, pulmonary surgery has received considerable attention. Clinical observations have been made by Mosler, Pepper, Koch, Bull, Hollister, and myself, and the subject has been studied in an experimental way by Gluck, Schmidt, and Bloch. In 1882, Bull, of Christiania, was able to tabulate 19 cases where operations had been performed for various kinds of pulmonary cavities. I shall limit my remarks here to cases of acute pulmonary gangrene. So little is known in this branch of surgery that it is safe only to draw conclusions from similar or identical cases. Acute gangrene of the lung, as is well known, is either diffuse or circumscribed. Diffuse pulmonary gangrene has never as yet and probably never will be interfered with surgically. Aside from its being, in all probability, an inevitably fatal disease, the course it runs is so acute, it is accompanied by such symptoms of depression and asthenic fever, that the condition the patient is found in will almost always exclude the thought of an operation. Circumscribed pulmonary gangrene, on the other hand, runs a more chronic course, its symptoms are less grave, and the patient, often for many weeks, retains sufficient strength to bear the strain and shock of an operation. In this respect surgical interference is justifiable. It has, indeed, been thought of and resorted to four times within the last five years by men in different countries, and more or less independent of each other, not having any accurate knowledge of each other's doings in this particular department of our science.

Let us briefly call to mind what is known about circumscribed pulmonary gangrene. It may be caused by an embolus, a bronchitis or a pneumonia; but no matter what its cause is, it presents itself in the beginning as a necrotic portion of lung tissue, varying in size from that of a bean to that of a hen's egg. This necrotic piece of tissue is sharply defined; after a while it is isolated from the living pulmonary tissue by a demarcating inflammation. It then lies in a cavity as a foreign body. It may be found there, according to Rokitansky, as a blackish-green, shaggy and moist plug bathed in ichorous fluid and of considerably smaller size than the cavity. It, however, happens still more frequently that the necrotic piece does not keep together in one mass, but is dissolved into a grayish-brown, very fetid ichorous pulp which is mixed with rotten, shaggy fragments of tissue; the walls of the surrounding cavity are lined by the same shaggy tissue infiltrated with ichor. The surrounding pulmonary substance is sometimes normal; more frequently it is in a state of inflammation, which has a stage of, or terminates in, hepatization. This hepatization may extend through the whole lobe affected with the gangrene. In cases in which the gangrenous cavity communicates with a bronchus, the bronchus affords a channel for the evacuation of shreds of necrotic lung tissue. The suppuration going on in the walls of the cavity may eliminate all the adherent shreds of dead pulmonary tissue, an abscess may form which, after evacuation of its contents, may close up, the (abscess) cavity may contract, and, finally, nothing is left but a scar to indicate the spot where there once existed a circumscribed pulmonary gangrene. Such spontaneous recoveries may take place, but how often they do so and under what circumstances, is altogether unknown. The usual course

of circumscribed pulmonary gangrene is quite different. A gangrenous focus from which the disease does not extend nor spread is rare. In many cases gangrenous destruction going on in its walls enlarges the cavity, and during this process the patient dies of exhaustion; in others, grangrenous matter is aspirated from the cavity up into the bronchial tubes, deposited in other parts of the lung, and a diffuse gangrene is produced. In a third class of cases the patients do not die during the course of the gangrene. The gangrenous cavity is emptied of its fetid contents, transformed into an abscess cavity, and the odor of the breath and sputa disappears, patient's appetite returns, he grows strong, and makes an apparent recovery. However, the abscess cavity does not close up nor contract; after months or years of more or less impaired health, the contents of the cavity undergo decomposition, the walls of the cavity are constantly being destroyed, and even a second gangrene may set in. The patients die of exhaustion, which, in the latter case, is accompanied by the usual symptoms of pulmonary gangrene. We know this much, that circumscribed pulmonary gangrene terminates in perfect recovery only when the gangrenous cavity is small. In the great majority of cases the disease ends in death. (Vide Herz in Ziemsen's Encyclopædia.)

The prognosis of acute circumscribed gangrene of the lung is, of course, always grave. In any given case it is, during the whole course of the disease, impossible to foretell whether it will terminate in death or in recovery. A diffuse pulmonary gangrene, a gangrenous pyopneumothorax may supervene at any time, or the patient may die of exhaustion due either to the progressive local destruction, or to the accompanying fetid bronchitis. The internal remedies at our disposal at the present time can hardly be said to have any effect as far as regards checking the progress of the disease. They merely add aid in sustaining the patient, in keeping him alive till the gangrenous process has come to an end.

These facts, well considered, seem to justify the attempt to cure the disease by surgical measures; by them alone can we hope to put a stop to the progress of the local gangrenous destruction. Operations on the lungs with a view to bring about the healing up of gangrenous cavities have been performed in the four following cases.

CASES.

Case 1. Messrs. Cayley and Lawson reported the following case at a meeting of the Clinical Society of London. (*Lancet*, No. 29, March, 1879, p. 440.)

A man, 45 years old, was admitted to the Middlesex Hospital, December 30, 1878. He had previously been laid up for five weeks with an acute pneumonia of the left lung. At the time that he entered the hospital he presented the usual symptoms of pulmonary gangrene with formation of a cavity in the lower lobe of the left lung. The general condition of the patient was not at all favorable for an operation. After an exploratory puncture had confirmed the diagnosis, Mr. Lawson made an incision in the ninth intercostal space just below the angulus scapulæ. The cavity was evacuated, washed out and a drainage-tube inserted. Patient felt very much relieved, but four days after the operation he collapsed and died. Dr. Cayley pointed out that the only chances patient had of prolonging his life were those given by the operation, and that, if patient had come under treatment earlier, his prospects would have been better. At all events the operation gave patient some relief.

Case 2. Gangrenous Cavity in Middle Lobe of Right Lung subsequent to Croupous Pneumonia.—Insufficient outlet through the bronchi—Adynamic condition of patient—Incision in the region of the angle of the scapula—Drainage with injections of carbolized water—Decided improvement for a week—Cessation of fetor of breath and expectoration—Return of fetid expectoration—Collapse and death twelve days after the operation. (Solomon Charles Smith, Halifax, England, 1879, *Lancet*, vol. ii., No. 3, 1880, p. 86.) The patient, a man about 60 years of age, had always been in good health, until two months previous to the operation, during which time he had had a little shortness of breath on going up hill. Two weeks previous to the operation he had a sudden attack of pneumonia of the right side, with chills, pain in the right side, pneumonic crepitus and rusty sputum. The case was not very severe, the temperature never exceeding 102°, and in about a week he got up. Two days later, the cough became worse, he felt weak, had to go to bed, and his breath had an offensive odor.

October 13, he suddenly expectorated half a pint of fetid gray fluid, and sank rapidly into a condition of collapse. On the next day, the patient was covered with clammy perspiration, his respiration was rapid and difficult, with loud tracheal râles; pulse 130, very feeble; could not lie down on account of the cough. The air of the whole room was extremely offensive on account of the gangrenous odor of breath and expectoration. The matter expectorated was principally a thick, tenacious, mucopurulent mass, but frequently alternating with this was a thin, gray, offensive fluid, which seemed to gush into his throat suddenly, in such quantity that he would spit out mouthful after mouthful of about half an ounce each, for three or four times in succession. The right side was slightly less resonant than the left, especially at the base, and at and under the right nipple. There was less respiratory sound on the right side and less vocal vibration, but all the sounds were greatly masked by tracheal râles; he had no pain; the tongue was brownish-black and dry, and the patient was very weak. Under invigorating and stimulating treatment he seemed to improve a little for a day or two, but then the expectoration diminished and he became worse. Four days later, a quantity of the same fetid fluid as before was expectorated, and he felt a little relieved, but soon afterward the expectoration stopped again and the adynamic condition of the patient increased.

On October 20, distinct cavernous respiration was heard below the spine of the right scapula, and external to and below the right nipple. The diagnosis was now made of a large cavity extending chiefly

through the middle lobe of the right lung, with no efficient outlet for the contained fetid matter, and a consequent adynamic condition of the patient from poisoning by the fetid pus. It was now resolved to operate, with a view toward procuring an outlet for the fetid matter, for the following reasons:

1. That the actual condition of the patient made it certain that he would die, and that very speedily.

2. That there would be some chance for his life if the cavity could be found and an opening made.

3. That it would be justifiable to explore with an aspirator, and if the cavity was found, to enlarge the opening and put in a drainage-tube.

At a point near the angle of the scapula, an aspirator-needle was inserted for three or four inches. No fluid escaped, but very fetid air was drawn through the tube. On holding a candle near the canula, the flame was blown to and fro during respiration, so that evidently a cavity had been reached.

Using the canula as a director, a knife was inserted between the ribs, and by the side of the knife dressing forceps were slipped in and the wound enlarged sufficiently to allow the introduction of a small india-rubber tube. Through the latter, a little carbolic acid solution was injected. This seemed to occasion a fit of coughing, when about half a pint of fetid pus, of the same character as the former offensive expectoration, was forcibly expectorated. The tube was left in the wound, which was covered by a large pad of a dozen folds of coarse muslin, wrung out of a solution of carbolic acid. This dressing was ordered to be changed every three hours.

For the first week after the operation, the improvement was very decided. For six days, the expectoration was very much diminished. The fetor also became much less, except at the time when the dressing was changed. He enjoyed his food more, and was altogether more comfortable. The respiration became much clearer in the left lung and the unaffected parts of the right lung, the moist sounds being much less frequent, and the tracheal râles only occasional. The discharge from the wound, however, continued extremely offensive, notwithstanding the daily irrigation of the cavity by a siphon. Whenever the dressing was changed, it was found to be soaked with a discharge for an area of five or six inches in diameter. As the water which escaped on washing out the cavity was only slightly stained, the offensiveness was attributed not to any retention of pus, but rather to sloughing within the lung.

Eight days after the operation the discharge had lessened a good deal, but the expectoration now increased and again became offensive. The pulse increased to 112; temperature, 100°. On the next day he was better, in the morning, had less cough and expectoration, and took food well. But the wound was beginning to slough, and a few gangrenous black shreds were discharged through the drainage-tube. In the afternoon he became very ill, with labored breathing, quick pulse, and profuse cold sweats. From this time he gradually became weaker, would take no more food, and died November 2, apparently from simple asthenia. An autopsy was not held.

CASE 3. A girl of 23 years was admitted to the Hospital of Christiania, Dec. 13, 1880. E. Bull. (*Nord. Medic. Archive*, 1881, No. 17.) A month previous to her admission she had caught cold, began to cough and to expectorate yellowish muco-purulent sputa. One week afterwards her sputa, and, a little later still her breath, became fetid. Two weeks later she got a rigor, and at the same time she began to complain of pain in the left lung. The color of the sputa was now brownish red. She lost strength and had no appetite. At the time of her admission into the hospital her pulse was 104, temperature 102°, respiration 30. She coughed a great deal and expectorated a frothy fluid of fetid odor and tinged with blood. In the left axillary region the percussive note was dull, slightly tympanitic and large râles were heard.

On January 4 were discovered in addition the signs of a pleuritic effusion which extended over the posterior side of the left lower lobe. A few days later an exploratory puncture was made in the fifth left intercostal space, in the anterior axillary line. The syringe drew a bloody serous fluid which contained a great number of leucocytes.

January 19. Auscultation over the fourth intercostal space, near the anterior axillary line, gave the signs of a cavity. An exploratory puncture was here made with Pravaz's syringe, which drew a few drops of a bloody, purulent, fetid fluid. An exploratory puncture made below the left angulus scapulæ showed the effusion into the pleural cavity to consist of clear yellow serous fluid.

A gangrenous cavity was diagnosed, situated in the lower anterior part of the upper lobe of the left lung, and serous pluritic effusion extending over the lower lobe of the left lung. The advisability of an operation was discussed.

On the 20th of December a swelling was found in the outer half of the left mamma, just where the exploratory puncture had been made into the gangrenous cavity. It was tender to the touch. The following day a subcutaneous emphysema was discovered on the anterior side of the left half of the thorax. A small incision made in the above described swelling gave exit to a little fetid reddish pus. On the 24th patient was anæsthetized, a transverse incision two inches in length, was made across the fourth intercostal space, and an abscess-cavity found below the mamma, containing a few tablespoonfuls of gangrenous pus, which was evacuated. In the fourth intercostal space an opening was effected with a pair of dressing forceps which were cautiously worked through the intercostal muscles and the adherent pleuræ. The index finger introduced through this opening, moved around in a cavity whose walls were composed of soft, friable, shaggy tissue. The cavity was washed out with carbolized water, a drainage tube inserted and an antiseptic dressing applied. After the operation her pulse was 128 and respiration 40. In the afternoon she coughed up a couple of tablespoonfuls of fresh blood. On January 25 she coughed less and felt better. On January 31, in the afternoon, she had several small hæmoptyses, and during the following days she expectorated matter considerably tinged with blood. Between the 3d and the 10th of

January the fetor of her breath would diminish one day and be worse the next. After the 10th of January her general health began to improve, the cough diminished, her appetite returned, and she felt stronger. After January 14, her breath and expectoration were free from odor; one week later the cough ceased entirely, as did also the fever. The wound healed, and the physical symptoms gradually became normal. After a long convalescence she recovered her full health. About six months after the operation she was able to resume her work as a servant girl.

Case 4.—John Schubert, a German laborer, aged 39, had healthy parents, but does not know the later history of his brothers and sisters. Habits good. No venereal disease. Was healthy till nine years ago, when he had to keep his bed for a few days, and the symptoms of his sickness were fever. Made a perfect recovery. Five years ago he was taken sick with pneumonia, which he thinks was of the right lung, though he is not sure. He then was very sick for a few weeks, and recovered. As he became subsequently a member of a lodge, and was examined by their medical examiner, it is presumable that recovery had been entire. During this last winter he worked in a packing-house, and coughed more or less the rest of the winter.

February 29. After a week of aggravated cough, he had a chill which lasted a couple of hours, and took to his bed March 4. Dr. Valin was called to see him March 5. The respiratory murmur was absent from the lower third of right lung, and rather increased elsewhere.

Dullness was well marked over the same area, and pain was also complained of in that region, but there was some sensation of pain around the outer border of the diaphragm all around the chest.

There had been constipation for several days, to relieve which he was drinking an infusion of senna tea. The expectorations were mucous, and frequent. The respirations, 42 a minute, and distressing. The pulse 112, temperature 102. He was given whisky, 2½ grs. quin. every three hours, and Dover's powder liquid ʒss. every four hours.

March 6. There was some rusty sputa expectorated, which continued for a week, some streaks of blood being also present at times. Temperature during that time varied from 101 to 103, and was nearly normal. By March 15 the expectoration increased, and became more and more purulent. March 30 patient, upon very slight exertion, raised half an ounce of blood, and for the next three days some streaks of blood were present in the sputa, which from that time had a quite offensive odor.

April 5. Patient, upon trying to get up, had another hæmoptysis of about three ounces of blood.

April 6. Dr. C. Fenger saw the case in consultation, and found gangrene of right lung.

Dr. H. D. Valin.

April 6. I found patient lying in bed; pulse, 110; temperature, 101; respiration, 34. The air in the room, and especially in the neighborhood of the bed, had the fetid odor peculiar to gangrene. Patient's cheeks were a little flushed; otherwise he was pale, looked suffering and somewhat collapsed. He was troubled with a distressing cough, which prevented him from sleeping during the night. In the twenty-four hours he raised more than a pint of expectorated matter, which, on being poured into a glass, showed the three layers characteristic of pulmonary gangrene —an upper frothy layer, a middle layer consisting of a grayish thin fluid, and a bottom layer consisting of yellowish muco-purulent matter, streaked with blood, and also showing streaks and flakes of a dark gray color. Stethoscopic examination revealed the left lung and the heart to be normal. Percussing the right half of the chest, a clear note was obtained in the supra-clavicular, the infra-clavicular, and in the mammary region as low as the upper border of the fourth rib. Below this the percussion note was dull. In the axillary region there was likewise resonance down to the fourth rib, and dullness below and in the infra-axillary region. Percussion on the back gave a clear sound in the supra and infra-spinous regions; in the infra-scapular region the note heard was not exactly dull, but less resonant than on the other side. On auscultation, normal vesicular respiration was heard in the supra and infra-clavicular and in the upper axillary regions. On the posterior surface of the lung, vesicular respiration was accompanied by large mucous râles. No distinct respiratory sounds could be detected in the area of dullness in the infra-axillary and infra-mammary regions. At a point one inch below the nipple, on the fifth rib, a "Ventillant," a sound produced by the opening and closing of a valve, could be distinctly heard. No other signs of the presence of a cavity were as yet perceptible.

The case presented no difficulties to the formation of a diagnosis of pulmonary gangrene in anterior part of the lower lobe of the right lung. It was furthermore evident that more palpable signs would soon develop of a cavity, which would be situated in a part of the lung accessible to surgical interference. I advised patient to go to the hospital, and, as his life might possibly be saved thereby, to have an operation performed as soon as the evidences of a well-marked cavity would appear to be sufficient to justify operative measures. He was admitted to the Cook County Hospital April 11, 1884. On account of the unbearable stench surrounding him, he had to be removed from the common ward and put in a separate room. In the meantime cough and expectoration remained unchanged; he grew weaker, had been delirious at times, and his appetite was entirely gone; his bowels were regular.

April 12. Morning, pulse 104; temperature 100.2°. Evening, pulse 112; temperature 101. The right lung was again examined, and the area of dullness found to be unchanged, stretching from the fourth rib downwards over the infra-mammary and axillary regions. But in the centre of this area there was now a smaller one in which the percussion note was tympanitic; it extended 1½ inches downwards from the right nipple, and 3 inches transversely from the axillary into the infra-mammary region. Auscultation of this tympanitic area revealed distinct amphoric respiration, and amphoric or metallic râles.

April 13. *Operation.*—At 11 o'clock in the morning, in the presence of Drs. Murphy, Baxter and Randall, of the attending staff of the Cook County Hospital; of Dr. Valin, patient's former medical attendant, of Dr. Verity, and of the house staff of the hospital, patient was anæsthetized. A puncture was first made with a hypodermic needle in the mammary line, just below the fifth rib. From a depth of 1½–2 inches the syringe drew a thin, grayish-red fluid, which, on being poured into a glass, emitted the characteristic odor of gangrene. A transverse incision was now made, 3 inches long, parallel with the fifth rib, and having its mid point in the mammary line. The fifth rib was bared, and a 1½ inch piece was resected subperiosteally. A hypodermic needle detached from its syringe, was thrust in through the costal pleura; on being let go, it was observed to make slight movements corresponding to the respiratory movements, but they were not of sufficient extent to disprove the existence of adhesions between the two layers of the pleura. A long hypodermic needle was then screwed on the syringe, and was thrust in in different directions until the syringe again filled with gangrenous fluid. The syringe was unscrewed from the needle while the latter remained in place, in order to be used as a guide leading into the cavity. A large funnel-shaped canal was made with Paquelin's cautery, which was gradually pushed along the needle through the pleura and the subjacent pulmonary tissue, till, at a depth of about 1½ inch below the pleura, the cavity was entered. The opening was sufficiently enlarged to permit the index finger to enter the cavity, whose dimensions were found to be on palpation 3½ inches transversely, 2½ inches from above downwards, and about one inch antero-posteriorly. The walls of the cavity were felt to be rather firm and indurated. No shagginess nor detached shreds of pulmonary tissue could be detected. Drs. Baxter and Valin, who also made a digital exploration, confirmed these statements. The cavity was then washed out with a saturated solution of salicylic acid; as soon as it had filled, a vehement cough expelled the fluid mixed with air. Two large fenestrated drainage-tubes, and one of smaller size which was not fenestrated, were introduced into the cavity and held in place by a stitch to the skin. The whole operation was performed, so to speak, bloodless, as boring the pulmonary tissue with the cautery produced no hæmorrhage. The incision wound was left open, was dusted over with iodoform, and a heavy antiseptic dressing applied. Patient was brought to bed, and warming bottles were placed along his extremities.

At 1:30 P. M., the day of the operation, patient rested quietly; his cough had become less frequent. At 3 P. M. he asked for something to drink, and was given a glass of milk. Champagne, egg, lemonade, and milk with seltzer were ordered to be given when required. At 7:30 P. M. pulse 84, temperature 101.2°. Patient felt comfortable; he had some soreness and pain in the neighborhood of the wound. He was given a hypodermic injection of morphia and atropia and some cough medicine.

The air in the room was not exactly offensive. The fetor of the expired air had diminished so much that I could now sit by the patient and speak to him without covering his face with a towel, as I had always been obliged to do before.

April 14. Patient had passed a comfortable night; pulse in the morning 96; temperature 100.4. In the evening, pulse 96; temperature 101.2. His cough had gone on diminishing. The expired air and the sputum still emitted a gangrenous odor; the quantity of the expectorated matter was about ½ a pint. The dressings were saturated with a bloody fluid smelling of gangrene. The cavity was washed out with a solution of salicylic acid; this brought on a violent coughing, which caused several shreds of lung tissue, one of them 1½ inch in length, to be thrown out at the wound through and beside the drainage-tubes. Toward the end of the coughing-spell, the fluid ejected from the cavity was tinged with blood. The walls of the canal I had made with the cautery through the pulmonary tissue were covered with a grayish-brown eschar.

April 15. Morning, pulse 92; temperature 100°. Patient had passed a comfortable night, although he had not received any morphia. Evening, pulse 92; temperature 101.2. Patient was dressed; odor less marked; further shreds of lung tissue were thrown out.

April 16. Morning, pulse 90; temperature 100. Evening, pulse 94; temperature 100.5°. Patient was dressed. There was less discharge and less odor; a few fragments of pulmonary tissue were thrown out.

April 17. Morning, pulse 84; temperature 99.6°. Evening, pulse 90; temperature 99.8. Patient commenced to eat solid food.

April 18. Morning, pulse 85; temperature 99.° Evening, pulse 84; temperature 100.2°.

April 18. The wound had so far been dressed every day. The cavity was washed out but slightly on account of the distressing cough which invariably followed. There was now scarcely any odor to the breath or the sputa, which had diminished considerably in quantity. The whole (external) wound was now covered with granulations. The walls of the canal presented a gray pigment; they were smooth, bloodless, and had the appearance of a cut surface of pulmonary tissue in a state of gray hepatization.

April 19. Evening, pulse 84; temperature 101°. This was the last time that the temperature was found to be higher than normal.

April 23. Pulse and temperature normal. Patient slept well, his appetite returned, and breath and sputa had become odorless. The quantity of the expectorated matter which was muco-purulent in character, had been reduced or 2 to 3 ounces in the 24 hours. A small amount of yellow pus which, however, had no odor, was found in the dressings. This same thin yellow pus, mixed with air, was seen in the cavity instead of the former grayish or grayish-red, thin fluid. The walls of the canal were pretty well covered with a layer of granulation tissue.

April 29. The old drainage tubes were removed and substituted by a single one of the size of a finger.

May 1. Patient continued to sleep well, had an excellent appetite, and was gaining flesh. He

coughed once in a while, and during the day he raised about 1½ ℥ of muco-purulent sputa. In the area of dullness surrounding the cavity, fine subcrepitant râles were heard.

May 4. The opening into the cavity had contracted considerably. As the drainage tube was found pushed out several times and lying in the dressings, it was not again replaced.

May 11. The wound, which had not been dressed for five days, was mostly healed. A small fistulous tract only remained which communicated with a bronchus; for a few drops of yellow pus mixed with a little air, were forced into the wound when patient was made to cough. On percussion of the chest resonance was obtained in the infra-mammary region down to the fifth rib; in the axillary region down to the sixth. Dullness only remained in an area about two inches in diameter right around the wound. The fine sub-crepitant râles had disappeared; there was normal vesicular respiration all around the fistula, auscultation could detect no signs of a cavity.

In the infrascapular region the respiratory sounds were normal; there were no râles.

May 12. Patient was allowed to sit up a little every day.

June 26. Patient has grown fat and strong and feels well in every respect. A small fistulous opening has remained through which a fine probe passes in for a distance of 2½ inches. When patient is made to cough, neither air nor fluid escapes from this fistulous opening. But a few days ago when I injected a small syringeful of tincture of iodine into the fistula, a violent fit of coughing was thereby produced. The sputum raised by this cough contained brown specks of tincture of iodine, which could be seen with the naked eye. They were proved to be iodine by the starch test. It is evident that this fistula is still in communication with a bronchus.

Patient left the hospital.[1]

These cases, though only four in number, showing two deaths and two recoveries, satisfactorily prove to my mind that opening a pulmonary cavity in acute cases of circumscribed gangrene of the lungs, is a justifiable operation. In not one of the above cases did any mischief, or even any inconvenience to the patient, result from the operation. On the contrary, the immediate effect of the operation was a very decided improvement in the condition of the patient, even in the two fatal cases. The distressing cough was, in every one of these four cases, greatly diminished at once. The explanation of this is to be sought not only in the immediate evacuation of the gangrenous contents of the cavity, but also in the fact that the fluid re-accumulating in the cavity, largely ran off through the drainage tubes, whereas, before the operation it had been aspirated up into the bronchi, thereby producing a more or less extensive fetid bronchitis. This bronchitis ceased very rapidly, and there can be no doubt that it, more than the presence of the cavity itself, is the cause of the constant coughing.

The fetor of the breath and sputa diminished simultaneously with the cough, as would naturally be expected.

As to the cause of non-success in Cayley & Lawson's case, the authors themselves state that the operation was performed too late, and that it might have been successful if performed at an earlier stage of the disease. In Smith's case no autopsy was held, and so nothing can be known as to the cause of its failure. Bull's case and my own have this in common, that in both the cavity closed in about four weeks; that the fever decreased together with the fetor of sputum and ceased in Bull's case in three, in my own case in two weeks after the operation. Cessation of the fetor was followed by improvement in the general condition of the patient, whose appetite and strength returned.

I now wish to add a few words concerning the operation itself and the after-treatment.

Operation.—We should operate as early as possible, that is, as soon as the physical signs of a cavity have become manifest. We should not operate (for anatomical reasons) when the cavity is covered by the scapula or is situated in the apex of the lung. The latter will hardly ever happen in cases of pulmonary gangrene. The location of the cavity should be ascertained by making an exploratory aspiration with a fine needle. The opening into the cavity should be made at the spot where the cavity comes nearest the surface; for not only should we injure as little lung tissue as possible, but we should also have the shortest possible canal into the cavity; the shorter the canal is, the easier will it be to keep it open and to drain off the contents of the cavity. Besides, we may reasonably expect to find pleural adhesions where the cavity is most superficial. These will prevent the operation from causing a pyopneumothorax. It almost seems that, under these particular circumstances, our natural dread of opening a pleural cavity is founded in theory more than in practice. In not one of the 20 cases now on record, in which pulmonary cavities were opened, did such a complication occur.

The incision should be made parallel with the ribs, one or more of which should be resected if necessary. It is essential to have free access to the cavity, as well for the immediate digital exploration made for the purpose of removing large pieces of dead pulmonary tissue, as for the sake of having a wide canal (subsequently) into which sufficiently large drainage-tubes can be introduced. Experience has shown that these canals are liable to contract and close up before the pulmonary cavity has become obliterated.

The canal leading through the pulmonary substance into the cavity, is best made by means of the thermo-cautery, as was proposed by Albert and Koch. Their method has been strongly advocated by Mosler as being superior to any other as yet suggested. The smaller burner of Paguelin's cautery should, as was done in my case, be gradually worked in through the substance of the lung along a detached hypodermic needle, which is used as a guide. The cautery will thus be pushed in not merely in the direction of the cavity, but also in the shortest line existing between the latter and the surface. Working

[1]For valuable assistance in the after-treatment I am greatly indebted to Dr. E. P. Davis, then House Surgeon at Cook County Hospital.

slowly with the red-hot cautery will produce no disturbing hæmorrhage from the pulmonary parenchyma, and the canal can easily be enlarged to such size as may seem convenient. Having reached the cavity, we should explore it with the index finger; if large and detached pieces of lung-tissue are discovered, we should remove them with a pair of forceps, being very careful to avoid causing any hæmorrhage by tearing off still adherent shreds of pulmonary tissue. Our knowledge that it is not uncommon for the walls of a gangrenous cavity to bleed considerably, will render us cautious while making the digital exploration.

Whether it is advisable or not to make a counter-opening for the sake of facilitating draining and washing out of the cavity, can as yet hardly be stated. It has not been tried in any of the cases in which operations were performed for pulmonary gangrene. If the counter-opening, in order to be effected, should demand perforation of a thick layer of pulmonary parenchyma, I think most surgeons would hesitate to prolong the operation on this account; for patients suffering from gangrene of the lung are, when operated upon, rather debilitated and exhausted. In my own case, I felt like trusting to one opening, reserving the operation for a counter-opening for some future time if necessity should call for one. Neither in Bull's case nor in mine did such necessity arise.

I forgot to mention one point in connection with the thermo-cautery. A knife, trocar, or some blunt instrument may well be used for opening a cavity which is situated close to the surface of the lung. But in cases where any amount of parenchyma has to be perforated, the thermo-cautery is by far the safer instrument. Now, I do not think it possible to ascertain by auscultation whether a few lines only or an inch or more of lung substance lie between the cavity and the wall of the thorax.

The cavity should be washed out with some antiseptic solution if practicable; but great care should be exercised in doing so. If the cavity communicate with a larger bronchus, and we allow the solution to run in freely, we may, especially during the chloroform narcosis, be so unfortunate as to fill the bronchi of both lungs to such an extent as to produce suffocation. Moreover, injections of even a small quantity of fluid, the nature of which seems to be rather irrelevant, is, in some cases, followed by a fit of coughing sufficiently vehement to produce hæmorrhage from the walls of the cavity. We should, therefore, allow a little fluid only, and that under low pressure, to run into the cavity at a time, and closely watch the effects thereby produced in the patient. It may be that simply draining the cavity without any washing out, is sufficient to secure the beneficial effects of the operation. There is a great difference right here between Bull's case and mine. In Bull's case injection into the cavity never produced any coughing. In my case the smallest quantity of fluid, not only when injected under pressure, but also when allowed simply to flow into the wound with extreme gentleness, was immediately and invariably followed by violent coughing. Mosler in treating other non-gangrenous cavities of the lungs, has experienced the same thing. He even attributed the death of one of his patients to the injection of a solution of thymol.

The wound may be dusted over with iodoform; this substance has proved effective in preventing the setting up of inflammatory disturbances by fetid fluid discharges coming into contact with the wound, as for instance in operations about the mouth and the rectum. But whether iodoform is indispensable in surgical cases of pulmonary gangrene is questionable. No case has as yet been reported in which the gangrenous fluid of a pulmonary cavity as such did much harm to the external wound; indeed, the fluid contained in these cavities does not seem to be septic.

A heavy antiseptic dressing should, of course, protect the wound. Septicæmia or pyæmia is just as likely to develop from a wound in the lung as from a wound in any other part of the body. But as it is difficult, nay, next to impossible thoroughly to disinfect a pulmonary cavity, the consequences of sepsis would in these cases be disastrous.

After-Treatment.—How often the dressings will require to be changed, will be indicated by the amount of discharge found in them. In the beginning the wound will probably require dressing every day; later on, less often will be sufficient. Daily washing out of the cavity may be desirable, but does not seem to be essential. As mentioned above, it had probably better be omitted if followed by violent coughing. The internal treatment should be carried on in accordance with the principles commonly laid down for the treatment of the disease in question. Disinfecting or deodorizing inhalations, however, whose influence it is difficult to comprehend from a rational a priori standpoint, seem to be rendered superfluous by the operation. If the canal should close before the cavity has cicatrised, I think we need not hesitate to remedy the matter by a second operation. In a favorable case, patient's general health will be far better than it was at the time of the first operation. As yet, however, no case has been published in which a second operation had become necessary.

In conclusion, I shall repeat that, in my opinion, the above cases clearly prove the operation for acute, circumscribed, pulmonary gangrene, to be a justifiable one. When performed in the above described manner, it cannot be said to be attended with any immediate danger to life; moreover, when performed early, we may reasonably hope that it will not only afford temporary relief, but effect a permanent cure. I therefore think that this operation greatly deserves to receive the attention of the profession.

214 East Ohio St., Chicago, Illinois.

A farewell banquet was given to Drs. S. C. Busey, D. W. Prentiss, W. W. Johnston, and J. S. Billings, at the Arlington Hotel, Washington, on June 28, by the Washington Obstetrical and Gynecological Society, on the occasion of the departure of these gentlemen for Europe to attend the Copenhagen International Medical Congress.—*Medical News.*

MEDICAL PROGRESS.

MEDICINE.

On the Connection of Acute Diabetes with Disease of the Pancreas.—Dr. George F. Duffey (Dublin *Journal of Medical Science*) gives a case of acute diabetes of only two months' duration, terminating, after a sudden onset of vomiting and diarrhœa, in death by coma. The patient was a country farm laborer, over six feet in height and well made; his age was 24, but he looked older. The first symptoms of his illness that he noticed were polyphagia, polydipsia, polyuria, and emaciation. While in the hospital he passed in the twenty-four hours from 215 to 170 ounces of highly saccharine urine, of a specific gravity from 1045 to 1040. There was pain in the epigastrium, and tenderness of the abdomen upon pressure. The diarrhœa persisted for a week; the stools were somewhat of a dysenteric character, being very frequent, but small in quantity, of a jelly-like consistence, and extremely fetid. For the first two or three days they contained white masses resembling lumps of undigested caseine, but these disappeared on giving him his milk peptonised. The temperature continued normal up to within three days of his death, when a state of collapse, with cold extremities, supervened. The post-mortem examination showed nothing remarkable to the naked eye, with the exception of the pancreas, which was hypertrophied and felt extremely indurated.

Dr. Duffey, in the further consideration of his case, reviews the statements of various authors to show the connection between disease of the pancreas and diabetes, and finds that in most of the cases cited the organ has been found to be atrophied, rather than hypertrophied. This he explains by the supposition that the atrophy is a sequence of the hypertrophy, and that in those cases of diabetes which have been of some duration the pancreas may at first have been enlarged, and subsequently have been atrophied; but that in acute cases of the disease (like his own) there had not been sufficient time before the patient's death for the atrophic change to occur, which generally follows primary inflammatory enlargement of the gland. His case further bears out the observations of Dr. Stephen Mackenzie—*i. e.*, that all of his cases, with one exception, dying at or below the age of 25 years, died of coma; and that the rapid course of the disease, which as a rule is equivalent to its severity, favors the occurrence of coma. There was also, in these cases of Mackenzie's, a freedom from, or only slightly developed, affections of the lungs.

The consideration of this case is followed by an article, by Mr. P. S. Abraham, giving his notes on the microscopical sections in two cases of diabetes mellitus, of which the case reported by Dr. Duffey constitutes one. Mr. Abraham devotes his attention especially to the condition of the nervous tissue in the cerebellum, pons and medulla. He found in one case, as most marked, numerous masses resembling the so-called "corpora amylacea" and "colloid" bodies, of all sizes, from the bulk of a leucocyte to twenty times the diameter. In Dr. Duffey's case a few of these masses were observed in the pons, in contiguity to the turgid blood-vessels. The pancreas he found to present the characteristics of carcinoma. He also found the kidneys to show inflammatory infiltration and fatty degeneration, while the lungs gave patches of hepatization, with the usual appearances of pneumonia, which last does not seem to accord with Dr. Duffey's statement of freedom from lung trouble.

The Antipyretic Treatment of Typhoid Fever.—There has recently been a pretty thorough discussion of this mode of treatment in the London Medical Society, and carefully prepared papers on the subject have been read by Drs. Coupland, Bristowe and Cayley. The *British Medical Journal* has had a leader on the subject, and Dr. J. O. Affleck has, in its pages, given an interesting summary with some valuable deductions.

This disease owes some of its dangerous characters and damaging effects to the long continuance of pyrexia; the toxic action of the fever poison, particularly on the nervous system, the local lesions in the intestines, and their results in the structural changes and atrophies which render the assimilative processes comparatively inert, form a large part of the morbid process. Since the introduction of the clinical thermometer, attention has been turned in a special manner to the treatment of the pyrexia, with the view of lessening its amount, or at least, of breaking its continuity. For this purpose, various antipyretic drugs of known potency (quinine, salicylate of soda, salicin, kairin, etc.) have been turned to account, and they undoubtedly, in many instances, succeed in bringing down for a time a high degree of temperature. To most of them, however, there exists the objection that their continuance upon which, indeed, their efficacy depends, is often ill borne by the digestive organs, and in some cases they appear to be rather hurtful than otherwise.

The modern employment of the cold bath or cold bathing of the body in fever appears to have been first resorted to in Germany, by Liebermeister, Brand and others. The advantages of this mode of treatment are stated by Dr. Cayley to be as follows:

1. It fulfils the physiological indications that by keeping down the temperature, the febrile metabolism of the tissues, and the accummulation in the blood of the products of this metabolism—and to this Dr. Murchison attributes most of the symptoms of the typhoid state—are much diminished. The granular infiltration and softening of the central nervous system of the heart, of the liver, of the kidneys, of the voluntary muscles, is to a great extent prevented; and, by the stimulating effect of the treatment on the vaso-motor system, that want of tone and general relaxation of the arteries, which is a marked feature of the disease, is counteracted.

2. Where efficiently applied, the treatment produces marked alleviation of the symptoms. When the temperature is kept down, the so-called typhoid symptoms are seldom seen, etc.

3. Complications are rendered neither more frequent nor more severe.

4. The rate of mortality is greatly diminished.

Dr. Affleck discusses these four conclusions in order. As regards the first, he considers that the mere height of the temperature and its effects on tissue-metabolism, will not satisfactorily account for the peculiar symptoms of typhoid fever. A septic process is in operation of which the temperature is but one of the manifestations and not always, *per se*, an accurate or reliable one. In addition, in enteric fever there is a distinct visceral lesion, which obviously bears some relation to the temperature. It can scarcely be contended that the mere combating of the febrile action can counteract either of these great factors in the disease. This line of treatment is simply directed to a mere symptom, and is incapable of influencing the still existing cause underlying all the phenomena.

As to the second point, viz., the efficient application of the cold bath treatment, this is limited by requirements which are impracticable in a very considerable proportion of cases. It is difficult to recognize typhoid fever "from the first," and, at least in hospital practice, most of the cases have gone on for a good many days before they come under the cognizance of the physician. Further, its advocates recommend great caution in its use where severe local lesions are indicated, although it is just in such cases that the temperature is often highest.

Thirdly, as to the complications, it is doubtful that pulmonary diseases are rendered much less frequent in view of testimony of a directly contrary character; while as regards intestinal lesions, there is evidence that the liability to these is somewhat increased.

With reference to the last point, a greatly diminished mortality rate, here, too, the proof is inconclusive. First the diagnosis is a matter of uncertainty, the numbers quoted may include morbid conditions which are known to simulate typhoid fever. Then of late years a vast improvement has taken place in nursing, dieting, general hygiene, and in the medical treatment of such cases. Jaccoud asserts "that while the mortality in typhoid under the old method of treatment was about 19 per cent., under the antipyretic mode it is under 11 per cent;" but Dr. Affleck gives the mortality statistics of the typhoid wards of the Edinburgh Royal Infirmary during the 4 years of 1880 to 1883, where in 509 cases there were 60 deaths. Thus, under a non-antipyretic treatment the total mortality was not more than 12 per cent., and if cases moribund when admitted, and dying in less than forty-eight hours, be excluded, the rate is reduced below ten per cent.

Dr. Affleck's objections to this treatment are, the fatigue involved, increasing risks by movements in progressive bowel lesions; and the depressing effects upon the circulation, with the risks of intestinal congestion, hæmorrhage, etc. He therefore contends that the limit of its applicability is a comparatively narrow one.

ALGID COLLAPSE.—Hallopean, in *La France Médicale*, (*Edinburgh Med. Jour.*), under the name of Algid Collapse, describes a condition characterized by partial or general coldness of the body, accompanied with prostration. He regards the condition as the opposite of what occurs in fevers, and that it is due to an opposite state of the vaso-motor nerves to that which is present in fevers. The condition is specially observed in cases where the abdominal viscera are the seat of violent irritation, as in cholera, irritant poisoning, intestinal strangulation, and injuries to the abdomen. The lowering of the temperature usually begins in the extremities and face, and may be confined to these parts, but may become general. The contraction of the capillaries in these parts, and the consequent diminution in the amount of heat thus lost, would lead to the expectation that the internal temperature would be raised, which is not generally found to be the case, and this is explained on the supposition that there is a concomitant diminution in the activity of combustion. The pulse is small, the heart sounds are very feeble. The integuments are pale or cyanotic, and covered with a cold perspiration. There is often a degree of dyspnœa not explicable by respiratory lesion. The urine is diminished, and is often albuminous. There are muscular cramps, and the patient suffers from vertigo. He holds that the condition is due to the irritation of the sympathetic centre by the nerves going from the affected part, and through the sympathetic the calibre of the arteries is diminished; that by this means there is venous engorgement and deficient oxidation in the lungs, etc. He believes the condition is not to be explained by a general affection of the circulation, but is due to local disturbances in the circulation and the calorification. And this, he thinks, is proven by the symptoms of the collapse being limited to certain parts, particularly the face and extremities.

FAT CRYSTALS IN FÆCES IN OBSTRUCTION TO THE PANCREATIC DUCT.—Ziehl in the *Archives Générales de Médecine* (*Edinburgh Med. Jour.*), says that fat is mixed with feculent discharges in the case of obstruction to the pancreatic duct in various forms, either as yellowish compact masses, as an oily fluid, or more rarely in the form of acicular crystals united in bundles, and which can only be found by microscopic examination. These crystals had been described by Friedreich in two cases. They are not crystals of tyrosin, as has been maintained by some. Tyrosin crystals are light-brown, and are not soluble in ether, whereas these other crystals are clear and transparent, and are soluble in ether. And he records a case in which the presence of these crystals in the stools helped him to diagnosticate a case of malignant disease of the head of the pancreas. In it the motions, which were dry, formed, and silver-gray, contained a large quantity of microscopic needle-like crystals, which were either isolated or united in bundles, and which, after being dissolved in ether and then vaporized, left an abundant deposit of fat.

DISCHARGE OF A NECROSED ARYTENOID CARTILAGE DURING LIFE.—Dr. Schiffers presented to the Société Médico-Chirurgicale de Liége (*Annales*) an anatomical specimen in two pieces which represented the left arytenoid cartilage of a man 38 years of age, who had suffered from a severe attack of typhoid fever.

The largest of the two pieces was discharged during a threatening attack of asphyxia. Two or three months later, when all symptoms of dyspnœa had subsided, Schiffers saw lying across the glottis the second portion of the cartilage, which was smaller, and its most delicate extremity pressed a little into the posterior third of the right inferior vocal chord. While attempting to remove it a fit of coughing caused its expulsion. For some days before he again presented some symptoms of laryngeal stenosis. Since this removal of the second piece he has had no trouble, is robust and attends to his ordinary business.

At the last laryngoscopic examination, only the right inferior vocal cord was to be seen. The cord was large, and its functions were normal in the movements of respiration and phonation. During the emission of the sound *e*, it touched the border of the left inferior vocal cord, which was observed with difficulty. At the time of the first examination there were symptoms of unilateral paralysis of the crico-arytenoidei postici. The voice was relatively good, the tone was veiled, but the hoarseness not marked.

SURGERY.

Spina Bifida Cured by Elastic Ligature.—Dr. Antonio Turretta has republished from the *Giornale di Clinica e Terapia* of Messina, a case of spina bifida successfully treated by the elastic ligature. His aid was requested for a female child two months old, apparently in good health. She had a tumor as large as a small apple in the middle line opposite the two last cervical vertebræ. It existed at birth, and had since slowly increased. It was supported by a pedicle which measured an inch and a half in circumference. The covering skin was very thin, and of bluish-red color. The tumor was soft, flaccid, and fluctuating. Under strong pressure it diminished somewhat in size; the child cried, and slight convulsive movements were excited in the limbs. No other deformity was present, neither was there paralysis of any organ. An exploratory puncture at the base of the tumor with a trocar gave exit to a thin, transparent liquid of alkaline reaction. The tumor shrank, and the aperture was closed with iodoform collodion. Distension and fluctuation were again perceptible in twelve hours. The tumor having been half emptied by another puncture, its pedicle was constricted with a couple of turns of elastic ligature. At the moment of constriction the child cried, the face became livid, and some clonic movements were excited; but in a few hours the patient took the breast and rested. The next day vomiting was persistent, there was a tendency to coma, and twitching of the upper limbs. The condition on the third day was unchanged, and a small dose of calomel was given each day. All these symptoms had subsided on the sixth day, and the ligature with the tumor separated on the twelfth day, leaving a granulating surface, which gradually contracted. The cicatrix was complete, and the child cured on the twenty-seventh day.

Dr. James Weaver in a note refers to this case as corresponding exactly with one reported by him to the *Lancet* in 1870, his patient being now a hale and strong boy, the only remains of the tumor being a space about the size of one's palm, covered with long hairs, on his back.

OBSTETRICS AND GYNÆCOLOGY.

The Measurement of the Foot as an Index to the Size of the Child.—Dr. Alfred Gönner, of Basel, gives (*Zeitschrift für Geburtshülfe und Gynäkologie*) an attempt to overcome the difficulty in determining the size of the child's head in breech and podalic presentations. His plan is (*Medical Times*) to measure the foot, and from this datum to estimate the size of the child, and, therefore, of the head. He points out that the measurement of the foot is one easily made, and therefore, that his method has in this respect the advantage over the other modes by which it has been proposed to estimate the size of the child, such as measuring its length, and measuring the distance between the fontanelles. Dr. Gönner has measured and weighed 100 children. He comes to this conclusion: that if the foot measures more than 8 centimetres (nearly 3½ inches) in length, the child weighs more than 3,000 grammes (about 6 lbs. 10 ozs.). A foot more than 3½ inches long, therefore, makes it probable that the child is above the average weight, and that there will be more than usual difficulty in the extraction of the head. If the foot be only 7.6 centimetres (about 3 inches) long, a child of moderate dimensions may be expected; and a foot-length of only 7.3 centimetres (a little more than 2¾ inches) would justify us in assuming that the child was premature. It is interesting to note, also, that Dr. Gönner finds that the feet of female children are smaller in proportion to the size of the body than those of males. He suggests that the children of the educated classes will probably have relatively smaller feet than those of the laboring classes, but his own field of observation has not supplied him with the materials for testing this point.

The New Orleans *Medical and Surgical Journal* has been re-organized, as far as the editorial department is concerned. Three of the old corps retire, and the remaining two unite with eight others to form the New Orleans Medical Publishing Association. Those who have undertaken this work are active and well-informed young physicians, who promise a good journal.—*Medical News.*

Yellow Fever.—One death from yellow fever is reported at Pernambuco by the consul at that place, for the week ending June 7th, and three deaths at Santiago de Cuba for the same period.

Thirteen deaths from this disease are reported by the consul at Rio for the two weeks ending May 31st.

Reports from Ship Island, Sapelo, and Cape Charles quarantine stations indicate a healthy condition of affairs at those stations, with no yellow fever cases in hospital.—*Medical News.*

THE

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PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JULY 19, 1884.

THE CHOLERA. ITS PROGRESS IN FRANCE. — A cablegram from the U. S. Consul at Marseilles to Secretary Frelinghuysen under date July 10, gives the most reliable information at our command as to the progress of the epidemic during the last week. It says: "The situation at Toulon is unchanged — 14 to 17 deaths daily from cholera. Marseilles is worse. The deaths since Friday, inclusive, are seven, eleven, fifteen, twenty-five, twenty-three, twenty-three. Last night, July 10, twenty-two in twelve hours." Under date July 11, thirty-one deaths are reported at Marseilles up to noon of that day. A dispatch dated July 13, states that up to 9 P. M. there had been 57 deaths in Marseilles and 36 in Toulon during the preceding 24 hours.

Few cases have as yet occurred outside of these cities. Two cases were reported, July 10, at Transylvania, three at Port Mahon in Minorca, and one at Nimes in France. There is no cholera at Rome, and none at Leghorn. The view so strongly urged by Dr. Koch, that the microbe is responsible for cholera, is as strongly opposed by a number of French physicians. They have carefully inoculated a number of animals with Asiatic microbes, and have failed in every instance to give them cholera.

We believe that thus far Dr. Koch's experiments have all met with like results. Until more satisfactory proof to the contrary shall be adduced, it is quite as reasonable to presume that the microbe is simply a concomitant as that it is the *cause* of cholera.

Reports state that Paris is in excellent sanitary condition. No cholera has yet appeared there.

The French Minister of Commerce has written a letter to the Academy of Medicine, which will hold a meeting to-morrow, June 16, asking the Academy "to give an authoritative opinion in regard to the treatment of cholera cases, and the best measures to prevent the extension of the disease." At an early date we hope to present their reply to the readers of the JOURNAL.

INOCULATIVE PROTECTION AGAINST HYDROPHOBIA. —In the JOURNAL of July 12, under the head of Medical Progress, is an account of a communication by M. Pasteur, concerning his investigations and experiments with the virus of rabies, which is well calculated to create the impression that the diluted virus could be used by inoculation successfully to protect man as well as dogs from liability to attacks of that dreaded disease. In the present number of the JOURNAL our correspondent in Paris refers in his letter to the same subject, mentioning several cases in which the inoculation was tried in patients previously bitten by rabid animals, but which patients all died. Now a medical friend in St. Louis sends us the following item of correspondence, the closing paragraph of which asserts "that the idea of protecting *man* against hydrophobia by inoculation of rabic virus, has for the present, at least, not been investigated." From these various statements, we infer that some time is likely to elapse yet before a bite from a rabid animal can be rendered certainly harmless by inoculation with attenuated rabic virus. The note from our friend is as follows:

"INTERESTING CORRESPONDENCE ABOUT HYDROPHOBIA.—(From the *Courrier Des Etats Unis*). M. Joseph Braman, of New York, has addressed the following letter to M. Pasteur, the illustrious French chemist:

"'As a member of the American Public Health Association, I congratulate you on the discovery of a remedy to cure hydrophobia. At the next meeting of our Association I shall have the pleasure of proposing you as an honorary member.

"'Will you have the kindness to inform me: 1. Whether quills dipped in the virus could be used, as is being done in vaccination to prevent small-pox? 2. How long will the virus keep and be effective? 3. Can any be sent here which would last several weeks?'

"The following answer, signed by Dr. Roux, was received by M. Braman:

"'M. Pasteur instructed me to answer your letter of May 2.

"'The journals you have read have probably not given an accurate account of M. Pasteur's last statement, in which the subject of a *remedy against* hydrophobia has not been mentioned. M. P. has simply announced that rabic virus can be obtained of diverse

degrees of virulence, and furthermore, that *dogs* can be *protected* against rabies by inoculation of a carefully selected virus, which is obtained through a particular process.

"'It is impossible to send the virus a great distance; further, it must be well understood that the idea of protecting *man* against hydrophobia by inoculation of rabic virus, has for the present, at least, not been investigated.'"

"Wolverhampton and Staffordshire Hospital. Cases of Heart Disease Relieved by Bleeding."—Under this title, the *Lancet*, for May 31st, of current year, publishes notes of three cases, reported by W. Collier, M.A., M.B., Cantab., late House Physician. These are interesting from their novelty in this day and generation, when the lancet is almost a discarded instrument. They would seem to indicate, however, that the reaction which succeeded the indiscriminate employment of venesection, is weakening, and that a partial return to the lancet is gaining favor. Let us now examine the cases in question with reference to the blood-letting. All three presented signs and symptoms of venous stasis as a consequence of cardiac weakness. In all three were mitral murmurs, with evident enlargement of the heart. Ten minims of the tincture of digitalis and five grains of the carbonate of ammonium were administered to the first patient every five hours; also, four ounces of gin during the day. Thirty-eight hours after admission the symptoms had so increased in severity, that it was decided to abstract four ounces of blood from the arm. This was at once followed by such marked improvement that at the end of forty days the patient was discharged convalescent.

The second patient received a draught of the infusion of digitalis with ammonium carbonate and spirit of chloroform every six hours for four days. Nevertheless, the symptoms became so urgent on the fourth day as to render venesection advisable. Accordingly, as in the previous case, four ounces of blood were taken from the arm, with the same happy result. In the third case, the symptoms were so alarming at the end of five days, in spite of ten minims of tincture of digitalis and carbonate of ammonium every six hours, that eight ounces of blood were abstracted from the left brachio-cephalic vein, relief from the severity of the symptoms following almost immediately. Both patients were subsequently discharged convalescent, though one, owing to a relapse, had to be readmitted, and shortly afterwards died without a repetition of venesection.

In commenting on these cases, Mr. Collier thinks the use of the lancet was justified by the urgency of the symptoms due to the extreme engorgement of the venous system, since the overburdened right ventricle was powerless to react to the cardiac stimulants administered until relieved of a part of its load by the blood-letting. Furthermore, the benefit was in all three cases sufficient, in his opinion, to warrant the same proceeding in all similar cases.

It is so simple an operation to draw a few ounces of blood from the arm, and it was followed by such good results in the cases cited, that it may seem hypercritical to question its propriety under such circumstances. Nevertheless, might not the end it subserved have been brought about in another way and without the objections that may be urged against the lancet?

In the first place, the letting of blood entails a loss to the system of not merely serum, but likewise of blood corpuscles: A consideration of importance, since the blood of patients suffering with chronic heart disease is already spanæmic in most cases, and can illy spare any further loss of its globules. Secondly, as the internal medication employed had produced no appreciable effect at the end of several days, much valuable time was lost, for every hour, during which the struggle was prolonged, the heart lost ground. These objections, which may be urged against the final resort to venesection, can not be claimed in regard to prompt and free catharsis. Elaterium, or some other hydrogogue cathartic, would have been capable of so diminishing the surplus of fluid in the venous system, as to have enabled the heart to respond to means employed for its stimulation. And this proceedure, without being carried to the extent of depletion or possible gastro-enteritis, would not have been attended by any waste of corpuscular elements, nor probably by a delay of from thirty-eight hours to four days.

Again, the digitalis might have been exhibited at shorter intervals and in much larger doses. Indeed, the administration of a drug should be regulated by its effects and not by arbitrary rules of dosage. Had it in these cases been pushed until its full physiological action had begun to manifest itself, that is, until it had lessened the frequency and augmented the force and fullness of the pulse, it would have compelled the heart to react in spite of the venous engorgement. Free diuresis would have resulted with all its ensuing benefit. Right here it may be remarked, the great reason why digitalis so often disappoints the practitioner is, that he fails to employ it freely enough, being fearful of its cumulative effects. Yet these may be avoided if careful watch be kept over

the pulse and the drug promptly discontinued upon the first discovery of nausea and undue slowing of the heart's contractions. In hospital, if not in private practice, such watchful surveillance is easy.

On the whole, therefore, we think the gentleman of the Wolverhampton and Staffordshire hospital might have rendered the resort to blood-letting unnecessary, had they so chosen.

TENNESSEE STATE BOARD OF HEALTH.—Dr. J. Berrien Lindsley, of Nashville, has been elected to the position of Secretary and Executive Officer of the State Board of Health of Tennessee, which had recently been vacated by the resignation of Dr. C. C. Fite. The position is one involving much labor, directed by a high order of executive ability. The appointment of Dr. Lindsley is an excellent one in all respects.

LITERARY HONORS.—At the recent commencement of the Syracuse University, the honorary degree of LL.D. was conferred by the Faculty and Trustees upon Dr. Nathaniel C. Husted, formerly one of the Vice-Presidents of the American Medical Association and a well-known physician of New York City, etc.

Rutherford College, of North Carolina, has conferred the degree of Doctor of Laws upon Dr. Morris H. Henry, of New York City.

Dr. MacRae of Scotland, recently died suddenly while inhaling chloroform for the purpose of having a tumor removed from his neck by Professor Annandale, of Edinburgh. He was at the middle period of life, and in apparently good health.

SOCIETY PROCEEDINGS.

SOME REMARKS UPON THE TYPE OF TYPHOID FEVER PREVALENT LAST WINTER, WITH PATHOLOGICAL SPECIMENS.

BY GEORGE W. VOGLER, M.D.

Read before the Philadelphia County Medical Society, May 21, 1884.

Mr. President:

The following brief notes may prove of interest to those present this evening.

I desire more particularly to call attention to the unusual prevalence of typhoid fever in our city during the past winter, to the grave type of a majority of the cases, and to the unusually numerous complications.

These notes refer only to the cases that came under my notice during my service at the German Hospital for the months of January, February and March of this year. I might state in passing that what is true of these cases, is also true of those occurring in my private practice.

During the three months twenty-four (24) cases were admitted into the wards, more than half the entire number of cases treated in that institution last year. As three (3) of the above number were brought into the house in a moribund condition, dying immediately or shortly after their admission, the remarks to follow will not appertain to them.

The balance, twenty-one (21) in number, receiving treatment at our hands, may be divided into the following two classes: mitior, 7; gravior, 14; total, 21. Of the gravior died: uncomplicated, 3; complicated, 2; total, 5 deaths.

For a time there were thirteen (13) cases of typhoid fever under treatment at one and the same time.

My resident, Dr. Weed, kindly tabulated twelve (12) of the fourteen (14) cases of the gravior type, and the more *prominent complications* noticed in this list are: peritonitis, meningitis, pneumonia, pleuritis, hydroa, rheumatic arthritis, abscesses, otitis media purulentia, parotiditis, and extreme nervous depression.

TWELVE OF THE FOURTEEN CASES OF THE GRAVIOR TYPE.	Nervous Depression.	Hyperpyrexia.	Hæmorrhage.	Vomiting.	Peritonitis.	Meningitis.	Pneumonia.	Pleuritis.	Hydroa.	Arthritis.	Abscesses.	Otitis Med. P.	Parotiditis.	
Stelig						1								R.
Emery		107°		1	1		1	1			1			R.
Schlipf	1	1	1											D.
Kindsvater					1									R.
Nill										1		1		R.
Bühler							1	1						R.
Meyer	1	1									1	1		R.
Murphy	1	1					1							D.
Stoetz			1	1										D.
Menzell	1								1				1	R.
Holzworth	1	1												D.
Kolb	1	1												D.

R. for recovered; D. for died.

It will be seen that some of these patients were troubled with more than one of these complications at the same time.

There is no doubt in my mind that a majority of the complications enumerated are chiefly attributable to the extraordinary long siege of inclement weather experienced during last winter.

In eight (8) of the gravior type of cases, the temperature ranged between 104 to 108 degrees. The ages ran from 16 to 34 years.

In some cases in which diarrhœa was not controlled by opium and silver, resorcin in doses of three grains acted very kindly, possessing also the

additional advantage of destroying the fœtor of the stools.

In those cases marked by great nervous excitement or actual delirium, and in which opium or bromides seemed of little or no avail, hypodermic injections of ten grains of muriate of quinia acted apparently as a hypnotic. In passing, I would like to state here that, in one instance, the hypodermic use of this remedy produced an abscess that gave us much trouble to heal. Our statistics at the hospital, however, show this to be a rare occurrence, as out of about 250 hypodermic injections of this remedy in various diseases, abscess resulted in but two instances.

An interesting feature noticed was that whenever the catamenia occurred it was invariably attended by an increase of temperature. In one instance, (Emery), where a relapse was supposed to have taken place, the temperature ran from normal up to 103°, and gradually subsided with the cessation of the menses. This phenomenon was noticed to occur twice in this particular case.

Another matter of interest was that two of the female employes of the hospital were stricken down with typhoid fever, barely escaping with their lives. The duty of one of these women was to empty and disinfect the receptacles for the excrement, etc., and to care for the soiled linen from the typhoid fever wards. The other was employed to wash this linen. I certainly would not like to draw the moral in the first instance: "Do not use disinfectants."

Of course, the treatment of the grave and complicated cases was adapted to suit each individual case. In the milder type of the disease, simple common-sense treatment was used, preferably the mineral acids, 5 or 10 drop doses of nitro-muriatic dil., changing to the dil. sulphuric if diarrhœa became troublesome. Where quinia was indicated, I gave it in small but repeated doses, instead of one or more large doses, rarely giving over 7 grains daily. This method has always obtained the most satisfactory results for me.

Dover's powder for sleep, and opium, silver, ergot and resorcin for diarrhœa and hæmorrhage, were used when necessary; also turpentine, when indicated.

A favorite method of giving small doses of turpentine, quinia, and dil. nitro-muriatic acid together, in cases where the symptoms existing demanded the need of all these remedies, was to use a menstruum of syr. ext. glyc. fld. in the proportion of 2 ƒ3 ext. glyc. fld. to 1 ƒ3 of syrup, flavored with ol. gaultheriæ. This makes a smooth, pleasant and palatable mixture.

I desire to show the following specimen of perforation of the bowels, the other interesting pathological specimens having been mislaid:

Anna Stötz, æt. 20, domestic, single. Admitted into house January 28, the seventh day of the disease, having had several severe hæmorrhages previous to admission. Some pulmonary complications of an acute nature also present; this rapidly disappeared under proper treatment. On the 30th profuse hæmorrhages occurred, seven or eight during the twenty-four hours.

Treatment: Gallic acid by bowels; opium, ergot and silver by mouth; strychnia hypodermically. By this treatment hæmorrhage was controlled, and fair hopes of recovery were held out.

About the 5th of February hæmorrhage again suddenly came on, which also gave way kindly to treatment. On the morning of the 10th, sudden collapse with intense pain in abdomen, followed rapidly by death.

The post-mortem examination revealed very extensive ulceration and a perforation situated close to the inner border of an ulcer some two inches in diameter, situated within a short distance of the ileo-cœcal valve.

ANNUAL MEETING OF THE UNION MEDICAL SOCIETY OF NORTHERN MICHIGAN.

The annual meeting of the Union Medical Society of Northern Michigan was held at Ionia, April 17, 1884.

There were present at the meeting Drs. Gundrum, H. B. Barnes, Romig, Will. L. Barnes, and Corcoran, of Ionia; McLean, Corey, and Bachman, of Stanton; Bower, Nichols, and Sheldon, of Greenville; Groner, of Big Rapids; Roller, of Edmon; White, of Reed City; Brandt, of Belding; Bailey, of Berlin; Hathaway, of Howard; Smith, of Orleans; and Forsyth, of Lakeview. Four new members were received into the Society.

The following papers and reports of cases were presented: A case of melanosis, by Dr. N. E. Bachman, of Stanton; a case of melanotic sarcoma, occurring at the Big Rapids Hospital, by Dr. F. J. Groner, the surgeon in charge; a case of dropsy of the broad ligament, by Dr. C. S. Sheldon, of Greenville; a case of erysipelas, in which the use of ergot was advocated as a specific in the affection, by Dr. E. O. Smith, of Orleans; a case of pelvic hæmatocele, by Dr. F. J. Groner, of Big Rapids; a paper with the following title, "Was it a Case of Superfœtation?" by Dr. H. L. Bower, of Greenville; a paper by Dr. A. W. Nichols, of Greenville, on "The Relations of the General Practitioner to Insanity." These reports of cases and papers gave rise to spirited and interesting discussions.

The election of officers for the coming year was held, with the following result: President, Dr. D. A. McLean, of Stanton; Vice-Presidents—Dr. S. V. Romig, of Ionia county; Dr. L. A. Roller, of Montcalm county; Dr. F. J. Groner, of Mecosta county; Dr. L. S. Ellis, of Manistee county; Dr. W. H. Aylesworth, of Kent county; Dr. C. H. White, of Osceola county; Treasurer, Dr. N. E. Bachman, of Stanton; Secretary, Dr. C. S. Sheldon, of Greenville; Board of Censors—Dr. F. Gundrum, of Ionia; Dr. L. S. Griswold, of Big Rapids; Dr. A. L. Corey, of Stanton; Dr. J. H. Forsyth, of Lakeview; Dr. C. S. Ford, of Cedar Springs.

The retiring President, Dr. H. B. Barnes, of Ionia, then delivered an earnest and practical address, advocating more thoroughness and a higher standard of medical education.

The following delegates were appointed to attend the next meeting of the American Medical Associa-

tion: Drs. Groner, McLean, H. B. Barnes, Gundrum, and Sheldon.

On motion, the Secretary was instructed to send a synopsis of the proceedings of the Society to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, for publication.

Adjourned to meet at Big Rapids July 17, 1884.

CHARLES S. SHELDON, Secretary.

ROCKY MOUNTAIN MEDICAL ASSOCIATION.

The thirteenth annual meeting of the Rocky Mountain Medical Association was held in the parlor of the Ebbitt House, Washington, D. C., Wednesday evening, May 7th, 1884.

The president, Dr. J. F. Hibberd, of Richmond, Indiana, occupied the chair.

The following members were in attendance: Drs. N. S. Davis, Pollock, Toner, Bartlett, Sutton of Aurora, Sutton of Pittsburgh, Heighway, Long, Parsons, Harding, Hibberd, Mowry, Findley, Cutter, Strong, Holton and Morris. Honorary members: Mrs. Hibberd and Mrs. Morris.

The minutes of the meeting at Cleveland and the Memorial Record were read by the secretary. The only death reported during the year was that of Mrs. Catlin, an honorary member and widow of a former president of the association. The secretary stated that not a single death of an active member had occurred during the year. Of the original list of 123 members, eighty-one survive.

The annual address was then read by Dr. Hibberd the president. It was a valuable and interesting paper and was listened to with marked attention. As it embraced many reminiscenses and striking incidents of the ever memorable journey to San Francisco, a copy was requested for publication. On motion of Dr. Bartlett a vote of thanks was extended to Dr. Hibberd, and the secretary was authorized to have the address printed in pamphlet form for distribution among the members.

A feeling memorial tribute to the memory of Dr. John A. McFarland, prepared by Drs. J. U. Hirckerman, A. B. Hovey and H. B. Gibbon, a Committee of the Tiffin, Ohio, Medical Society, was read and ordered to be placed on the minutes.

Dr. George Sutton, of Aurora, Indiana, was elected president, and Dr. John Morris. of Baltimore, secretary and treasurer for the ensuing year.

The association then adjourned to meet in New Orleans the first Wednesday in May, 1885.

JOHN MORRIS, *Sec'y.*

PROCEEDINGS OF THE NEBRASKA STATE MEDICAL SOCIETY. Fifteenth Annual Session, May, 1883. Plattsmouth, Neb. ROBT. R. LIVINGSTON, Corresponding Secretary.

Contents as follows:

Address of the retiring President, A. H. Sowers, M.D.

1. Report of pistol wound of R. Lung, Diaphragm and Liver, J. Gahan, M.D.
2. Vaccination in America, Horace Chapin, M.D.
3. Cystoid Degeneration of the Kidneys, A. S. v. Mansfelde, M.D.
4. A case of Cystitis, W. O. Henry, M.D.
5. Therapeutic Addenda, A S. v. Mansfelde, M.D.
6. A case of poisoning by Aconite, A. B. Anderson, M.D.
7. Proper procedure in cases of Obstruction to Labor at Superior Strait, Richard Moore, M.D.

STATE MEDICINE.

NEW ORLEANS QUARANTINE CONFERENCE.

In response to an invitation from Dr. Joseph Holt, President of the Board of Health of the State of Louisiana, a considerable number of representatives from the States of Tennessee, Texas, Louisiana, Mississippi, Alabama, and Florida, attended a Conference in New Orleans, June 2, 3 and 4, 1884.

From advance sheets of the Secretary's report we select the following items of interest:

The following report was made by the committee on the proposition of the necessity of prompt interchange between State and municipal boards of health of information on all subjects relating to public health:

Be it Resolved, That each and every health organization represented in this convention pledge itself to promptly furnish to each other all information in regard to the appearance of cholera or yellow fever or suspicious cases of yellow fever. We recommend that for the purpose indicated in the above resolution, the following groups of symptoms shall be considered to indicate yellow fever and suspicious cases:

I. The following groups of symptoms shall be considered to indicate yellow fever:

Group 1.—A person after a sudden attack has a fever of one paroxysm, attended with marked congestion of blood, stasis of capillaries of surface, conjunctivæ and gums, with a history of probable exposure to infection, and no history of a previous attack of yellow fever.

Group 2.—A person after a sudden attack has a fever of one paroxysm, followed by unusual prostration, albuminous urine, yellowness of conjunctivæ or skin, and having no positively authenticated history of previous attack of yellow fever.

Group 3.—A person has a fever of one paroxysm, albuminous urine, black vomit, suppression of urine, general hæmorrhagic tendency, under circumstances where exposure to the infection is a possibility.

II. *Suspicious cases of yellow fever.*—The following symptoms, associated with a fever of one paroxysm in a patient who has apparently been exposed to infection, and has never had yellow fever, shall be held to justify in either of the six following cases:

1. Suddenness of attack either with violent pain in the head and back, injected eyes and face, or with marked congestion of the superficial capillaries.
2. Want of correlation between pulse and temperature usual to other forms of fever.

3. Albuminous urine.
4. Black vomit.
5. General hæmorrhagic tendency.
6. Yellowness of the skin.

The following cases shall also be deemed suspicious:

7. Any case respecting which reputable and experienced physicians disagree as to whether the disease is or is not yellow fever.

8. Any case respecting which efforts are made to conceal its existence, full history and true nature.

In the event of death of a suspicious case, a post-mortem examination should be made, when practicable. Both before and after death, yellow fever is specially and preëminently characterized by the fact that it is *par excellence* a hæmorrhagic fever, marked by capillary congestion and its sequelæ, hence post-mortem evidence of a general hæmorrhagic tendency in internal organs, especially in the digestive, in preference to the urinary tract, shall be held to confirm the suspicion.

The above were adopted by the New Orleans Medical and Surgical Association and Louisiana State Medical Society.

Respectfully submitted,
GEO. A. KETCHUM, of Alabama,
L. F. SALOMON, of Louisiana,
Committee.

The report was adopted and endorsed as the sense of the Conference.

During the third day's session the Committee on Maritime Quarantine brought in the following report, which was adopted:

"Can an efficient Maritime Quarantine be enforced?"

We can enforce such a quarantine only by devising plans of action such as promise a reasonable, if not a positive assurance of success.

We will understand better the particulars of treatment when we have described the course of a sailing ship through quarantine, no record of sickness on the voyage, a cargo of 30,000 bags of coffee, yellow fever epidemic in Rio, from whence she was cleared. She is brought alongside the wharf at the upper Quarantine Station, where she finds every arrangement for the rapid discharging and reloading of cargo. The crew, with all their effects, are at once taken ashore, where, in a room provided, everything they carry, apparel and baggage, is subjected to powerful disinfection. Their clothing exchanged for other clothing already treated, and this, in turn, disinfected. They are then received at a commodious boarding-house, comfortably prepared for them, there to undergo the prescribed detention. If one should fall ill, he is instantly removed to the hospital, as distant as can be located. In the meantime a full corps of acclimated stevedores are busy engaged in breaking out the cargo and transferring it to the warehouse, already built by the United States Government for that accommodation, there to undergo fumigation. As soon as completely emptied, or at least sufficiently so to permit of thorough cleansing and fumigation, the quarantine tug, a compactly built small vessel, somewhat after the fashion of a fire tug for harbor protection, is run alongside the ship. A hose, attached to a powerful forcing pump aboard the tug, is let through the forward hatchway down into the hold.

In order to flush the bilge quickly, it might be necessary to take up the limber planks, as a better examination could be had and the real condition ascertained. But whether this is done or not, or the ship be in ballast or not, she can be speedily and thoroughly washed. The pump is started and the washing begins, while the ship's pumps are set to discharging the foul bilge-water. This continues until she is washed clean, not only in the timbers and floor of the hold, but the ceiling and every available part. She is now pumped out, the hose removed, and then begins the disinfection and fumigation. Another large hose attached to a powerful exhaust fan is lowered into the same position as the first. The hatches and every other outlet are closely battened, with the exception of a small ventillating hatchway, either at the bow or stern. A quantity of sulphur is put into the furnace connected with the fan and ignited. The exhaust fan is started and sulphurous acid gas in immense volumes and with tremendous force is driven into the timbers and air-strakes, into every crevice and part of that ship until she is completely filled.

In doing this we displace the mephitic and dangerous atmosphere closed in her when she started from Rio.

We have displaced this with not only a non-infected atmosphere, but with one intensely germicidal — one that destroys organic elements in the air, or on exposed surfaces with instant greediness. As for the fumigating agent to be selected, we may use through this apparatus sulphuric acid gas, chlorine, or the nitrous acid fumes, produced by pouring nitric acid upon copper filings. The fumes produced are so powerful that no animalculæ can exist in them for more than two seconds, and the portholes being closed for twelve hours, the process cannot fail to be effective.

After a few hours the hatches are removed and pure air is driven in to facilitate clearing the ship of the fumes. She is reloaded and, with her captain on board, in order not to vitiate the insurance, proceeds at once to the city, there to be discharged only by an acclimated gang. Her export freights must be ready. She is at once reloaded and starts on her voyage. If the term of detention of her crew has not already expired, she touches at Quarantine to take on such as have engaged to reship, and puts to sea, with no more detention than was required to cleanse her, with the utmost expedition, which alone was worth the trouble.

Such a method would soon be adopted at tropical ports, before loading, which would greatly lessen the danger and facilitate our work. To avoid complicating the legal point the Board of Health gives the ship the option of remaining at the station with the crew on board the full term of detention, or leave the crew there. Owners will rather leave the crew, and so contract with them, if necessary, as soon as it becomes known that the regulations of this port will

enable ships to lessen their detention. Under such a system days of detention will be reduced to hours, because ships cleansed, disinfected and fumigated in name would be so in fact. There could be no object in holding such a vessel in quarantine, except to serve as a hotel for the crew, which, under the improved system, would be provided on shore; but at present we all agree on a detention of not less than 10 days.

The above plan is submitted as the only one which, in the opinion of your committee, meets the requirements of a quarantine embodying the highest efficiency in the guarantees against importation of pestilence, while at the same time causing the least possible injury to commerce. The present methods of quarantine are, in the opinion of your committee, too vulnerable for criticism, while inflicting upon commerce the extremest hindrance and operating inconvenience to all. They are not reliable in any of the guarantees against the importation of infection.

We would urge upon the boards here represented the rigid execution of all the methods now in vogue to secure such safety as the present system may possibly afford, but that the boards of health in the several States of the Gulf immediately urge upon their several legislative bodies and upon their people the earliest adoption of an improved system of quarantine, in accordance with the foregoing plan.

As to non-intercourse, we can but express the opinion that such a system of rational, strictly scientific quarantine non-intercourse is never necessary to efficiency in a sanitary point of view, and can only be damaging to commercial interests and violative of every interest of humanity, recognizing the fact that the present system, as pursued at the Gulf ports, does not furnish a reasonable security at all times. Exigencies may arise demanding either absolute non-intercourse, or the nearest approximation that can be attained in the extended detention of 30 or 60 days, which is the equivalent.

GEO. A. KETCHUM, Alabama.
R. W. HARGIS, Florida.
A. P. CHAPLIN, Lower Mississippi.
C. D. RICE, Mississippi.
R. M. SWEARINGEN, Texas.
C. C. FITE, Tennessee.
JOS. HOLT, Louisiana.

The Committee on Interstate Quarantine reported the following:

Resolved, That there should be entire harmony and coöperation between the health authorities of the several States.

Resolved, Every State should appoint inspectors on all passenger trains from infected places, and on all steamboats or other river craft on which it may be deemed advisable to have inspectors to see that the quarantine rules are enforced in good faith.

Resolved, Every State should have the right to place inspectors of its own at points within the jurisdiction of any other State, and upon railroad trains and river boats within the limits of such jurisdiction. Inspectors coming under this head should be allowed all reasonable facilities for obtaining information and for the transmission of the same; and should comply with the quarantine regulations of the State or locality in which they are acting.

On local or municipal quarantine yellow fever or cholera having been introduced into any community, particularly into any city or town, earnest efforts should be made to confine the disease within the smallest limits—that is to say, to prevent its dissemination through the community. To this end the infected house or locality should be rigorously isolated and disinfection should be employed according to the most approved methods.

JEROME COCHRAN, Alabama.
G. B. THORNTON, Tennessee.
W. E. ANDERSON, Florida.
R. M. SWEARINGEN, Texas.
J. M. TAYLOR, Mississippi.
L. F. SALOMON, Louisiana.

There was great unanimity of feeling displayed throughout the meeting, and, if the Boards intrusted stand together, much will be accomplished.

ILLINOIS STATE BOARD OF HEALTH,
OFFICE OF THE SECRETARY,
SPRINGFIELD, July, 1884.

DEAR SIR:—At the recent meeting of the State Board of Health, held in Springfield, July 2 and 3, 1884, the following resolution was adopted:

Resolved, That while epidemic cholera may be excluded from this country by thoroughly enforced quarantine regulations, yet the best attainable sanitary condition of every locality in the State should be secured, so that in the event of Asiatic cholera effecting an entrance, notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances; and the Secretary is, therefore, hereby authorized to take such action as, in his judgment, will most promptly obtain a thorough sanitary organization of the State, and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

It is entirely possible that we may escape a visitation of Asiatic cholera this year, although there is yet plenty of time for the disease to reach our shores before cold weather. But even if there were no danger from this source, it should be remembered that everything which is done in the direction of sanitary improvement benefits the general health, reduces the amount of sickness, and lessens the death-rate. An obvious duty, therefore, rests at all times, but more urgently at present, upon those charged with the administration of public-health affairs, to take such steps as may be necessary to remedy any defects in the existing sanitary status.

To this end a general inspection of the entire territory under your jurisdiction should be made forthwith; and all nuisances, or other conditions injurious to the public health, which may be disclosed by such inspection, should be promptly abated. Especial attention should be paid to—

FIRST.—*The condition of the water-supply.*
SECOND.—*The disposition of night-soil, garbage and sewage.*
THIRD.—*The cleansing of streets, alleys, and other public places.*
FOURTH.—*The supervision of food-supplies, and of market-places, slaughter-houses and similar establishments.*
FIFTH.—*The general sanitation of every house and its surroundings*

1. Water is one of the commonest mediums through which cholera spreads; but, aside from this, typhoid and malarial fevers, diarrhœa, dysentery and other diseases, are caused by impure and polluted water. Hence the necessity of protecting the supply from contamination by surface-washings and drainage of filthy soil or premises, or of wastes from manufacturing establishments, or by seepage through the ground from privy-vaults, cess-pools, etc.

2. Night-soil, garbage, sewage, and all other forms of decomposing organic matter, are highly prejudicial to health, and their foul odors are indications of danger. The various methods for their proper disposal, so as to render them harmless, are well understood, and should be enforced according to the varying conditions of each locality.

3. Clean streets and alleys, and gutters properly drained and kept free from unsightly and filthy accumulations, are of even greater importance during the heat of summer, than at other times. The healthy condition of the atmosphere of a locality largely depends upon the condition of its thoroughfares.

4. The rapid decomposition of most articles of food during hot weather—the tainting, souring, wilting or rotting processes—and the derangements of the stomach and bowels caused by the use of such food, indicate the necessity for special supervision at this time, of all food-supplies, and of the places where they are prepared, stored, or disposed of.

5. The foundation of healthy living is, obviously, the individual home and its surroundings. Houses, cellars, yards and outbuildings should be carefully inspected, and all accumulations of garbage, refuse and filth of every description should be removed, or, where this is not practicable, they should be rendered harmless by appropriate treatment. No house or premises can be healthy without proper drainage. If this is not secured by sewers or underground drains, then recourse should be had to surface drains, so as to prevent the possibility of stagnant water under the dwelling or in its vicinity. Cellars should be dry, clean and well-ventilated, so that they may not generate foul air to be drawn up through the house.

It is desired that this work of inspection, and remedying of evils and defects, be begun at the earliest practicable moment; and a preliminary report be made to this office, covering in a general way, the existing sanitary condition, and the measures adopted and enforced for its improvement.

In connection with this report, information concerning your public-health provisions is alo desired. I have, therefore, to request the names and addresses of your health commissioner, health officer, members of the board of health, or kindred officials; and copies of your health laws, ordinances, rules and regulations, etc.

With this information from every part of the State, the Board will be able to secure concert of action, and to direct, intelligently and efficiently, whatever measures may be found necessary should, unfortunately, any emergency arise requiring such action.

Forms of health ordinances, adapted to the various organizations of villages, towns and cities in the State, are now being prepared, and copies of the same will be furnished on application.

Confidently anticipating your early attention to this matter, in the interest of your community, I am,

Very respectfully, John H. Rauch,
Secretary.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

Paris, June 11, 1885.

It is difficult to reconcile the arguments lately propounded by M. Pasteur at the Academy of Sciences, and subsequently at the Academy of Medicine, with the facts elicited by the report that was read on the 16th of February last at the Council of Salubrity of the Seine, of which M. Pasteur is a member, on the cases of hydrophobia or rabies that were observed in human subjects in the department during the years 1881, 1882 and 1883. These cases amounted to 33. Of this number, 24 were treated by various methods, and nine were treated by inoculation with the rabie virus, viz.: One by Drs. Dujardin, Beaumetz and Lannelongue, one by Dr. Bouchard, two by persons not named, one by M. Roux, one of M. Pasteur's pupils, this inoculation being consequently practiced in strict conformity with M. Pasteur's mode of proceeding, finally four, or rather five, practiced by M. Pasteur himself. All 33, men, women and children, died, the inoculated as well as the non-inoculated, and in the same lapse of time. And it is after such deplorable results that M. Pasteur lately declared before the academies with some assurance that the first series of experiments that he undertook gave him great hopes that, if a person bitten by a mad-dog were inoculated during the stage of incubation, he would with certainty be protected against the development of the disease, and a fatal issue would thus be averted.

Attempts are from time to time made to rehabilitate the practice of bleeding (here used in a general sense) as a therapeutic agent in the treatment of disease. In France the practice of general or local blood-letting is all but entirely exploded, so much so that the present generation of medical students scarcely know how to use a lancet for the purposes of venesection. Cupping is sometimes employed, but leeches are now so rarely seen that they are almost looked upon as simple curiosities of natural history. Professors Hardy and Peter, of the Paris Faculty, however, still practice blood-letting in most of the cases in which it was formerly resorted to. In Belgium an attempt is being made to revive blood-letting, and Dr. Borlée, in a very able address at the Academy of Medicine of Brussels, lately protested in strong terms against the abandonment of, in his opinion, such a valuable remedy in the treatment of disease, observing at the same time that it was simply due to the impulse of fashion, for after having in former times employed blood-letting to excess, it is now almost considered malpraxis to draw blood from a patient even where it is clearly indicated. This change is said to be justifiable by the teachings of modern experimental physiology and therapeutics, which argument, however, does not hold good in all cases. For instance, Dr. Borlée was struck with the great mortality from pneumonia for some years past, which he is convinced is due to the suppression of blood-letting, and asserted that at the commencement

of his hospital career, every pneumonic patient was treated by the anti-phlogistic method, in which, of course, bleeding is included. The cases of non-success were rare. He did not believe in the change alleged to have taken place in the medical or individual constitutions, and after disserting on the physiological action of blood-letting, which consists in diminishing vascular tension and increasing the activity of the circulation, he advocates its employment in all cases of congestion and inflammation, in which no other method would be of much avail. Dr. Borlée recommends bleeding during the paroxysms of asthma, unattended with cardiac complications, in which cases nothing is more efficacious, and the almost instantaneous relief it affords is always most marked. Plethora, the divers congestions produced by albuminuria of pregnancy, apoplexy, nephritis resulting from scarlet fever and other affections, and hæmorrhages in general are, according to Dr. Borlée, so many definite indications for blood-letting.

Dr. Borlée, I am afraid, will not obtain many proselytes, as the teachings of the modern school tend to a practice almost diametrically opposed to that advocated by him. The Academy of Brussels is so impressed with the advantages of blood-letting, that last year it proposed a prize for the best essay on the subject, but none was forthcoming. This year another appeal is made to the profession, and another prize offered by the Academy for the best essay "On the physiological action of local and general abstraction of blood; its indications and contra-indications in the treatment of disease." The value of the prize is 1,500 francs, and the competition, which I presume is open to all nationalities, as nothing is stated to the contrary, will be closed on the 31st of December, 1885. The conditions laid down are: The memoirs, legibly written in Latin, French, or Flemish, should be addressed, post-paid, to the Secretary of the Academy of Medicine, at Brussels.

Exclusion from competition will be imposed on the following grounds: 1. The memoirs which do not fulfil the conditions above mentioned. 2. Those whose authors will be made known, directly or indirectly. 3. Those which may have been published, either totally or partially, or had been presented to any other learned body. 4. Those that reach the secretary's office after the time fixed. Moreover, the Academy exacts that quotations should be rigorously noted, and the competitors are expected to indicate the editions and pages of the books from which the quotations are borrowed. The memoirs should bear only a motto, which should be copied on a sealed envelope, enclosing the names and addresses of the authors. The envelope attached to the memoir crowned will be opened in public by the President, who will immediately proclaim the name of the author.

Dr. Borlée, at whose instigation the above subject is proposed for competition, is Professor of Clinical Surgery at the University of Liege, but he would not allow this to prevent his proposing what may be considered strictly a medical subject. He thought that the time had arrived when the line of demarcation should no longer exist, as medicine and surgery are not two distinct sciences, but they simply constitute two branches of the same science. The unity of the two branches is discovered in every-day practice, where the therapeutics of the so-called surgical affections are blended with those of medical cases, and vice versa. ALEX. BOGGS.

DOMESTIC CORRESPONDENCE.

FROM WASHINGTON.

MEDICAL MATTERS BEFORE CONGRESS.—The mention made in a previous letter, page 698, of the appropriations recommended in the House of Representatives for the contingent epidemic fund and for the support of the National Board of Health, should have been accompanied by the following:

Mr. Riggs, from the Committee on the Public Health, submitted the following report: [To accompany bill H. R. 2785.]

The Committee on the Public Health, to whom was referred the bill H. R. 2785, have carefully considered the same and the important subjects which it involves, and have the honor to report:

That they do not think it would be wise to confer upon the National Board of Health the broad powers which they would possess if this bill should become a law. We believe it will be best to leave the management of the quarantine and epidemics where it rests now. The Secretary of the Treasury in his last annual report assures us that the present plan has furnished good results, and we are convinced his statement is correct. Yet we are of the opinion the National Board of Health should be preserved, and that it should be provided with reasonable means to pay the expenses of its existence and of such work as properly comes within its sphere.

Therefore your committe recommend that the bill mentioned do not pass.

They further recommend the passage of the accompanying resolution.

June 23, Mr. Moulton, of Illinois, introduced a bill (H. R. 7426) to incorporate the National Eclectic Institute and Sanitarium of the District of Columbia. The bill names twelve individuals, men and women, who are to conduct an institution, the practice of which shall be the scientific use of electricity, combined in cabinet vapor, and medicated baths of magnetism, Swedish movement and nutritive cure, upon the brain, the nerves and the blood. The institution is to embrace a dietetic and hygienic department, designed to invigorate and restore mental and physical exhaustion. The poor will be provided for if the benevolent will contribute enough to pay their expenses; and the institution is to hold and use property, personal or real, sufficient for its full accommodation, convenience and support, which shall be exempt from all taxes and assessments.

Irrespective, of course, of what goes before, I would like to state that the *Medical Times and Gazette* of June 7th has a very interesting editorial headed, "A Hotbed of Quackery," referring to London and the operations there of two prominent

irregulars, one a Count Cesare Nattei, of Bologna, a man of birth and property; he has found two remedies in Italy, by which he can cure all diseases, even cancer; he has cured thousands he says, in different cities, and for many years he has maintained out of his own funds a hospital at Bologna, for the treatment of the poor. He is distinctly a humoral pathologist. There are two main fluids in the body, blood and lymph, and all diseases arise from the perversion of one or both; there are also two main remedies, and if your disease will not yield to "Antilimfatici," it will assuredly succumb to "Anti-Angiotici." His name as the author of the new "electro-homœopathy" is mentioned with sympathetic respect in many an aristocratic home. The other is an ex-lieutenant of the Swedish army, who adopts a modified form of Zander's system, in a large house in one of the best West-end squares of London, and the number of patients who daily submit to these manipulations is described as very considerable. He will knead your head for epilepsy, pummel you for locomotor ataxy, tweak you for paralysis, and in fact manipulate you for any and every disease. He, too, has a plausible theory, and is in a position to appeal with success to the wealthy and so-called educated classes. The *Times* concludes its editorial by consoling practitioners with the assertion that their patients will come back to them after a certain period of trial culminating in disappointment, but thinks that if doctors would never try to make people think that they know much more than they do, but would honestly confess their ignorance when they are puzzled, their patients would have less reason to confound them with irregular practitioners, and less temptation to fly from one to the other. Please excuse this digression if it be so considered, but it seems to be pertinent and suggestive.

We are to have a new medical college. We have only three now, and this will make the much-needed fourth. The other three think there are two too many already. Put them all in one, and the revenue would hardly buy the necessary materials for teaching. This is to be a department of the National University so long talked of, and the medical gentlemen who, by their enterprise, will at least earn the title of professor, are as follows: John T. Winter, M.D., Professor of Materia Medica and Therapeutics, and President of the Faculty; Howard H. Barker, M.D., Professor of Obstetrics and the Diseases of Women and Children, and Dean of the Faculty; Thomas E. McArdle, M.D., Professor of Surgery and member of the Board of regents; Samuel S. Adams, M.D., Professor of the Theory and Practice of Medicine; G. Wyeth Cook, M.D., Professor of Physiology; Middleton F. Cuthbert, M.D., Professor of Chemistry; George Wm. West, M.D., Professor of Anatomy. The first course of lectures will commence October 1 next. This University has already had a law department in operation for some years.

I would like to suggest, Mr. Editor, that you give us your views upon the influence which the new rule adopted by the Association, allowing all medical men of good standing in their respective Societies, by presenting the proper credentials, to become permanent members of the American Medical Association, should have upon the selection of delegates to the same body in the future. It has been common up to this time for men who have proved their efficiency in the past as delegates, and therefore have become thoroughly familiar with the workings of the Association, to stand aside to make room for others to take their places, and become in turn permanent members. Is it not the time now for insisting upon a more stable and permanent organization, by showing the various societies the importance of electing the same delegates, year after year if necessary, when they have shown their active interest in the Association, and ability to fill these places satisfactorily? In other words, to resort to a more careful selection for the future.

W. L.

NERVE FUNCTIONS.

On the following postulates we desire the calm and careful consideration of those conversant with the blood supply and microscopic anatomy of the brain, that our interchange of views may be beneficial as well as entertaining to the readers of the JOURNAL.

We hold that there is no such thing as reflex action. That all nerve force is from center to periphery, and that which we term reflex action is but the cognizance of nerve-waste, and that the involuntary motion of avoidance is the result of ganglionic cell supply of same. Constant irritation of the peripheral end of a nerve calls for continued supply, thereby an abnormal determination to its center and finally inflammation, erroneously termed *transferred* irritation. The gray through its oxygen, being the true dynamic matter, is but fuel for future brain waste, and any impediment to its transit through its schwannian structure destroys its use, as is seen in sclerosis, insanity, perverted sensations, neuralgia, as well as in the beneficial results of nerve-stretching and counter-irritation. That it is the seat of any intellectual faculty, is destroyed by the frequent loss or absence of a part or parts which was not even suspected during life, but if viewed as a protein neucleated cell, which by the constant calls of the economy become fissiparously multiplied,elo ngated and enveloped by the white substance of schwann, is carried to its termination to supply nervous sensation or force, would explain its invariable and super-abundant connection with the centers of all nerves of rapid or constant use or action, as thalamus, corpus geniculatum and striatum and pineal body. And to those following the ingenious researches of Gaul in the pleurality of brain functions, a more likely reward in determining the depth to which the pia mater dips into the substance in the centers of Ferrier, than by any convolution or tubercle on the outer table of the skull. Ferrier, in the demonstration of his centers, conclusively proves such pleurality, and if these be viewed as the *infundibular origin* of a special nerve, and the heart (not the pineal body as according to Descartes) as the seat of the soul in man, and knowing its intimate connection through the pneumogastric nerve with the cerebrum, cerebellum, chord and

sympathetic system and find a very plausible center for the *secure* and *ready* manifestation of every psychical impulse. More anon, SIGMA.

NECROLOGY.

COLEMAN, WILLIAM CLARK, M.D., was born in Clarksburg, Indiana Co., Pa., Nov. 29, 1839, and died at the residence of his mother near Livermore, Pa., May 4, 1880. His parents were of Scotch-Irish extraction. He was educated at Elder's Ridge Academy, Pennsylvania, and Saltsburg Academy in the same State. At the outbreak of the civil war his medical studies were unfinished and he preferred the duties of a soldier to those of a subordinate in the medical department. He accordingly enlisted as a private in Company D., Eleventh Regiment, Pennsylvania reserve vols., Aug. 30, 1861, and served in the field throughout the war, taking part in twenty-six battles, including those of Fredericksburg, Gettysburg, the Wilderness, Spottsylvania, Petersburg, Five Forks and Appamattox, C. H., at five of which he was wounded, in the right elbow, in the left arm, in the left hip, and in the chest, respectively. He was early promoted for gallant and meritorious conduct to the rank of First Sergeant, next to that of First Lieutenant, and then to a Captaincy. On several occasions he was the subject of special mention by commanding officers for bravery in battle as well as for efficient service rendered the wounded on the field after battles. At the close of the war he continued his medical studies, attending his first course of lectures at the Jefferson Medical College, followed by a second and third course at the Long Island College Hospital, where he graduated June 28, 1868. He was married May 18, 1869, to Isabella J. Richey, of Livermore, Pa., who died June 6, 1876. The result of this marriage was two children, a daughter and son, the latter dying a few months prior to his father. He located first at Livermore, Pa., but removed after a short time to Latrobe, Pa., where he continued to reside.

Dr. Coleman was a member of the Westmoreland County (Pa.) Medical Society, having been its President in 1874. He was also a member of the Medical Society of the State of Pennsylvania, and of the American Medical Association. He made a study of hygiene, on the chief points of which he lectured extensively and acceptably before audiences more or less popular. In 1872 he delivered a complete course of lectures on physiology before the students of the Blairsville Academy, and afterwards to the students of the Blairsville Female Seminary. He contributed articles on various subjects to the medical journals and transactions of the State Society. On the 11th of August, 1871, he was commissioned Lieutenant-Colonel and Surgeon-in-Chief of the National Guards of Pennsylvania, Eighth Division, and recommissioned August 1, 1876. He was present at the Centennial Encampment throughout, and participated in the public demonstration of the Pennsylvania military in Philadelphia, Aug. 10, 1876. During the railroad riots of 1877 he was one of the leading surgeons in camp at Pittsburgh. Early in life he embraced the faith of the Presbyterian church, of which he continued a consistent member.

An indomitable will and ambition constantly evinced themselves during both his military and professional career. Dr. Coleman enjoyed an extensive practice and was respected and beloved by all who knew him. I. P. KLINGENSMITH, M.D.

Blairsville, Pa.

TUCKER, GEORGE GREENVILLE, M.D., born at Warren, Mass., in 1834, died at his residence in Westfield, Mass., August 19, 1883, of heart disease. His parents removed to Cambridge, Mass., during his childhood, where his father died, leaving the subject of this sketch at the age of twelve years dependent upon his own resources to obtain an education. He determined early in life to enter the medical profession, and at the age of seventeen entered the Massachusetts General Hospital as house officer, remaining three years, pursuing at the same time his medical studies in the Tremont and Harvard Medical Schools, graduating at the latter institution with distinction at the age of 20 years. Desiring more extended study and greater advantages before entering upon his professional career, at great personal sacrifice, he went abroad, spending some time in Paris. While in Europe he arranged to go on the medical staff of the Russian Army fighting in the Crimea; but peace came and he returned to America. He opened an office in Boston, where he remained a year, when a more favorable opening induced him to remove to Westfield, Mass., where he spent the remaining 27 years of his life in active practice, being wholly absorbed in his profession, caring for no other distinction than to be a skilful practitioner of medicine, consequently he was eminently successful both as a physician and surgeon. During the civil war he was obliged by circumstances to remain at home; but besides sending a substitute he gave public notice that he would attend the families of soldiers in town free of expense to them during the war, which duty he faithfully performed for four years. In 1873, his health being seriously impaired, he went abroad with his wife and little boy, remaining 15 months, spending one winter in Berlin. On returning home improved in health, he entered again with enthusiasm upon his beloved work, soon acquiring a large practice, which he handled till the day of his death, though suffering severely at times from neuralgia during the last years of his life. Dr. Tucker enjoyed the confidence and esteem of his professional brethren, and his social qualities made him many warm personal friends among his fellow-citizens. He married Miss Langdon, grand-daughter of the late Abner Past, of Westfield, Mass. He was an honored member of the Congregational Church, of the Massachusetts Medical Society, and of the American Medical Association.

JOHN H. GILMAN, M.D.

Lowell, Mass., July 9, 1884.

OFFICIAL NOTICE.

Annual Dues from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the Journal of the Association for one year.

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Official List of Changes of Stations, and Duties of Medical Officers, of the United States Marine Hospital Service, April 1 to June 30, 1884.

Bailhache, P. H., Surgeon, detailed as Chairman of Board to examine candidate for appointment into the Revenue Marine service, May 17, 1884.

Vansant, John, Surgeon, to proceed to Empire City, Oreg., as inspector, April 2, 1884.

Hutton, W. H. H., Surgeon, granted leave of absence for twenty-five days, May 14, and June 9, 1884.

Miller, T. W., Surgeon, granted leave of absence to attend the meeting of the American Medical Association, May 1, 1884; to proceed to Pittsburgh, Pa., Ashtabula, Ohio, Buffalo, N. Y., and Detroit, Mich., as inspector, May 10, 1884.

Wyman, Walter, Surgeon, detailed to represent the Marine Hospital Service as delegate to the American Medical Association, April 17, 1884; detailed as member of Commission to inspect United States buildings at quarantine station, on the Delaware river, June 16, 1884.

Austin, H. W, Surgeon, granted leave of absence to attend the meeting of the American Medical Association, May 2, 1884.

Gassaway, J. M., Surgeon, when relieved by P. A. Surgeon Mead, to proceed to Portland, Maine, and assume charge of the service, April 16, 1884; granted leave of absence for thirty days, May 28, 1884.

Stoner, G. W., Passed Assistant Surgeon, when relieved by Surgeon Gassaway to proceed to Cairo, Ill., and assume charge of the service, April 16, 1884; when relieved by Surgeon Gassaway to report in person to the Surgeon General, June 20, 1884.

Irwin, Fairfax, Passed Assistant Surgeon, granted leave of absence for twenty-one days, June 19, 1884.

Mead, F. W., Passed Assistant Surgeon, when relieved by Assistant Surgeon Devan to proceed to Philadelphia, Pa., and assume charge of the service, April 16, 1884; detailed as recorder of Board for physical examination of candidates for appointment as cadets in the Revenue Marine Service, May 20, 1884.

Carter, H. R, Passed Assistant Surgeon, to inspect unserviceable property at the San Francisco Hospital, May 24, 1884.

Wheeler, W. A, Passed Assistant Surgeon, to inspect unserviceable property at the Chicago Hospital, May 24, 1884.

Benson, J. A., Passed Assistant Surgeon, granted leave of absence for thirty days, April 14, 1884; when relieved by P. A. Surgeon Stoner to report to him for temporary duty, May 19, 1884.

Banks, C. E., Passed Assistant Surgeon, detailed as member of Board to examine physically candidates for appointment into the Revenue Marine Service, May 17, 1884; to inspect unserviceable property at Baltimore, Md., New York, N. Y., and Boston, Mass., May 26 and June 2, 1884.

Bennett, P. H., Assistant Surgeon, granted leave of absence for twenty days, June 28, 1884.

Devan, S. C., Assistant Surgeon, to proceed to Port Townsend, W. T., relieve P. A. Surgeon Mead, and assume charge of the service, April 14, 1884.

Urquhart, F. M., Assistant Surgeon, granted leave of absence for thirty days, May 22, 1884.

Yemans, H. W., Assistant Surgeon, to report to Capt. M. A. Healey for duty as Medical Officer during cruise of revenue cutter "Corwin," April 16, 1884.

Glennan, A. H., Assistant Surgeon, to proceed to Mobile, Ala., for temporary duty during sickness of P. A. Surgeon Goldsborough, June 17, 1884.

APPOINTMENT.

Brooks, Stephen D., M.D., of Massachusetts, having passed the examination required by the regulations, was appointed an Assistant Surgeon by the Secretary of the Treasury, May 15, 1884. (Dr. Brooks had previously served as an Acting Assistant Surgeon from March, 1883, to May, 1884.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department United States Army, from July 4, 1884, to July 11, 1884.

Promotion to date from July 2, 1884. Glover Perin, to be Assistant Surgeon-General with rank of Colonel, Andrew K. Smith to be Surgeon with rank of Lieutenant-Colonel, Passmore Middleton to be Surgeon with rank of Major.

PROMOTIONS.

To be Assistant-Surgeon with the rank of Captain, after five years' service, in accordance with the act of Congress of June 23, 1874:

Assistant-Surgeon,	John J. Kane,	June 3, 1884.
" "	John M. Banister,	" "
" "	Aaron H. Appel,	" "
" "	Charles Richard,	" "
" "	W. Fitzhugh Carter,	" "

Birmingham, H. P., First Lieutenant and Assistant-Surgeon, from Fort Bayard, N. M., to Fort Bliss, Texas. (Par. 3, S. O. 137, Hdqrs. Dept. of Missouri, July 3, 1884.

List of Official Changes in the Medical Corps of the Navy, for the Week Ending July 12, 1884.

P. A. Surgeon G. P. Lumsden, ordered to U. S. Steamer "Wyandotte," and placed on waiting orders.

P. A. Surgeon R. C. Persons detached from "Wyandotte," and placed on waiting orders.

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ORIGINAL ARTICLES.

ON THE CLINICAL STUDY OF THE HEART SOUNDS.

BY AUSTIN FLINT, M.D., LL.D.

Read to the Section on Practice of Medicine and Materia Medica, of Am. Med. Association, May, 1884.

The volume of the transactions of the American Medical Association for 1858, contains a prize essay by me on the "Clinical Study of the Heart-Sounds in Health and Disease." The term heart-sounds in this essay, used in its conventional sense, was limited to the normal sounds of the heart, and their abnormal modifications, the term, as thus limited, not embracing adventitious sounds, these being distinguished as heart murmurs. The following quotation is from the introductory remarks in that essay: "The clinical study of cardiac affections, which has been prosecuted of late years with so much assiduity and success by observers in different countries, has had reference more especially to the murmurs. On the normal sounds and their abnormal modifications, comparatively small attention has been bestowed. In the course of investigations, having reference to the diseases of the heart, I have been led to think that these sounds have not hitherto received that consideration which their importance claims. Impressed with the belief that a field for clinical research is here open, which requires only proper cultivation to yield results, possessing not only interest, but much practical utility as regards our knowledge of the heart in its physiological and pathological relations, I have for some time been engaged in inquiries directed to the subject. My design in this essay is to contribute the fruits of my researches, and to indicate some of the questions which are to be satisfactorily settled by an accumulation of facts developed by clinical observation."

This quotation is not entirely inapplicable to the subject at the present time. After twenty-six years, it may still be said that here is a field for clinical study not yet fully cultivated, and that the heart-sounds do not now receive at the hands of medical practitioners a consideration commensurate with the importance of their practical bearings. My object in this paper is to supplement the essay to which I have referred, by the results of some further study of the subject, with a view, more especially, to bring it again to the attention of clinical observers.

It is customary to consider the heart sounds as consisting of two in number, to wit: the first or systolic, and the second or diastolic sound. For convenience in regard to clinical study, it seems to me desirable to recognize five distinct sounds, two of which are diastolic, and three systolic.

The two diastolic sounds are referable, respectively, to the aortic and the pulmonic orifices of the heart. They may be studied separately, as is now generally admitted, by auscultating with the stethoscope, at the left and at the right second intercostal space close to the sternum. These two sounds may be called simply the aortic and the pulmonic.

Of the three systolic sounds, one emanates from the mitral, or the left auriculo-ventricular, and another from the tricuspid, or the right auriculo-ventricular orifice. The third systolic sound has no connection with the orifices of the heart, but is produced by the impulsion of the organ against the thoracic wall. These three sounds may be designated the mitral sound, the tricuspid sound, and the sound of impulsion. The facts stated in my prize essay in 1858 seemed to me then, and they seem to me not less now, to demonstrate the existence of these three distinct elements of the so-called first sound of the heart, and that each may be studied separately. I refer to the essay for the facts, not reproducing them in this paper. I will, however, state where the three sounds are to be separately studied.

Auscultating with the stethoscope (the binaural is to be preferred) over the apex, the intensity, the greater length and the distinctive quality, (which may be called booming[1]) of the so-called first sound, as compared with the second sound, (the pulmonic and aortic sound combined) are due to impulsion, that is, the movements of the apex upon the thoracic wall. The sound of impulsion is, therefore, to be studied in this situation. As a rule, this sound does not extend beyond a limited area around the apex. The mitral sound is heard, distinct from the sound of impulsion by moving the stethoscope to the left of the apex in the fourth intercostal space, for a distance sufficient to eliminate completely those characters of the so-called first sound which are referable to impulsion. The maximum of the intensity of the mitral sound is at the situation where the characters of impulsion are eliminated, and generally this situation is but a little removed to the left of the apex-beat. The tricuspid sound is heard distinct from the sound of impulsion, at the interior border of the heart, above the

[1]The word *booming* was applied by Walshe to the distinctive quality of the first sound as heard over the apex. This now has been applied, but inappropriately to the second sound.

xiphoid cartilege. Its maximum of intensity is at the situation where the characters of impulsion are eliminated[1].

Not going further into details relating to the existence of the five sounds, and the manner in which they are to be studied separately, I proceed to offer remarks on the clinical study of each one of these sounds under a distinct heading.

1. *The Aortic Sound.*—Incompetency of the aortic valve is generally, if not invariably, separated by a regurgitant murmur. It will, however, be admitted that this murmur, whatever may be its intensity and its characters in other respects, is, in itself, evidence only of the fact of incompetency. The murmur furnishes no criteria for determining the extent to which the valve is damaged. The incompetency may be so slight as to be innocuous, or it may be either small, moderate or great. Information on these points is furnished by either the unaffected intensity of the aortic sound, or the degree of its diminished intensity, and, in some instances, its absence. The importance of the study of the aortic sound, with reference to the gravity, or otherwise, of aortic lesions, is recognized now more than it was twenty-six years ago; but it is still inadequately appreciated by many practitioners. The abnormal weakness of the aortic sound may be estimated by comparison with the pulmonic sound, if the latter be neither intensified nor weakened by morbid conditions pertaining either to arterial tension of the pulmonary artery, or to an increased or diminished power of the right ventricle. A more reliable comparison is with the power of the left ventricle as represented by the sound of impulsion and the apex-beat. The co-existence of increased power of the left ventricle with notable feebleness or absence of the aortic sound, is especially significant as denoting considerable or great damage of the aortic valve.

Murmurs are sometimes spoken of as if they were modifications of the heart-sounds. The latter are always distinct from the former, the murmurs being either added to, or replacing the sounds. If the aortic sound be present, owing to its distinctive valvular quality, it may be recognized, notwithstanding the intensity or other characters of an associated murmur. Rarely, if ever, is the sound drowned by a murmur, however loud or rough, or musical.

The aortic sound is weakened by other causes than lesions affecting the aortic valve. Weakness of this sound is proportionate to the diminution of blood sent into the aorta with the systole of the left ventricle, in consequence of either mitral obstruction or regurgitation, or of both combined. The significance of weakness of this sound is greater in proportion as it is in contrast with the force with which the left ventricle contracts. As evidence of the degree of obstruction or of regurgitation, or of both combined, weakness of the aortic sound, although more regarded now than twenty-six years ago, does not as yet receive the attention which its clinical importance claims.

Abnormal increase of the intensity of the aortic sound is referable to two causes, namely: increased power of the systole of the left ventricle, and increased blood-pressure or tension of the systemic arteries. With regard to the first of these causes, there can be no question as to its agency. Abnormal loudness of the aortic sound is a sign of hypertrophy of the left ventricle, and, to a certain extent, a criterion of its degree, assuming, of course, integrity of the aortic and the mitral valve. Attention has of late been directed especially to an increased intensity of this sound as a criterion of arterial tension, and this latter condition, at the present time, holds an important place in pathology. Clinical observations have led me to distrust the value which some observers appear to attach to the intensity of the aortic sound as evidence of arterial tension. The intensity of this sound varies considerably in different healthy persons. Its relative intensity, as compared with the pulmonic sound, in health, is variable. Exceptionally it is less intense than the pulmonic sound.[1] It is certain that in some cases in which arterial tension is supposed to be an important pathological element, namely, in cases of contracted kidneys, the intensity of the aortic sound is not increased.

The following case is illustrative of this fact:—A patient, about 50 years of age, had had three attacks of uræmic convulsions. The quantity of urine was large, of low specific gravity, slightly albuminous, and contained hyaline and granular casts. He had no œdema except slightly below the eyes. The heart was a little enlarged, and there was no cardiac murmur. The pulmonic sound was distinctly louder than the aortic, the difference in pitch showing that the louder sound was the pulmonic and not the aortic.

In this instance, arterial tension was to be inferred, but, notwithstanding slight enlargement of the heart, and the absence of any evidence of a pulmonary affection, the aortic sound was apparently not increased in intensity.

The recent experiments by Dr. Charles L. Roy, reported in the *London Lancet*, Jan. 26, 1884, show that abruptly cutting off the supply of arterial blood to considerable portions of the body, by ligating large arteries, produces but an extremely slight effect upon the blood-pressure or arterial tension.

Reliance on the intensity of the aortic sound, irrespective of hypertrophy of the left ventricle, as evidence of arterial tension, or on the weakness of this sound as evidence that arterial tension does not exist, must, as it seems to me, lead to erroneous conclusions.

2. *Pulmonic Sound.*—Forty or more years ago, Skoda called attention to an increase of the intensity of the pulmonic sound as a sign of hypertrophy of the right ventricle, in cases of mitral lesions involving

[1] To obtain the maximum of intensity of the mitral and the tricuspid sound, the stethoscope is to be moved gradually from the borders of the heart until the sound becomes purely valvular, that is until the characters which belong to impulsion are eliminated. It is easy to find the situations where the purely valvular sounds have their maximum. These situations vary somewhat in different persons in health, and still more in cases of disease. To designate certain circumscribed places as mitral and tricuspid ones, as is done by some writers, is therefore inaccurate and leads to error.

[1] In these exceptional instances, the relatively less intensity of the aortic, as compared with the pulmonic sound, may be due to a transient excitement of the heart's action. As will be stated under the head of the pulmonic sound, the intensity of this sound is greater than the aortic when the heart is functionally excited.

either obstruction or regurgitation, or both combined. The intensity of the pulmonic sound is undoubtedly increased by hypertrophy of the right ventricle, but there is another and perhaps a more important factor in the production of this sign, to which attention has been more recently directed, namely, increased blood pressure within the pulmonary arterial system. That notably increased intensity of the pulmonic sound may be due to this factor, irrespective of hypertrophy of the right ventricle, is certain—a fact which explains the persistence of the sign after the right ventricle, in connection with mitral lesions, has become weakened by dilatation.

The pulmonic sound is more or less intensified whenever there is obstruction to the free circulation of blood through the lungs, the co-existence of hypertrophy of the right ventricle not being essential. It is a sign present in cases of pneumonia, capillary bronchitis, asthma, pulmonary œdema, pleurisy, with effusion and hydrothorax. To a certain extent, the degree of increased intensity may be taken as a criterion of the amount of obstruction.

Increased functional activity of the heart intensifies the pulmonic, more than the aortic, sound. The greater intensity of the pulmonic sound is referable chiefly to increased blood pressure within the pulmonary arteries. When the heart is excited by either active exercise or a moral emotion, the pulmonic sound is especially intensified. More blood is propelled into the lungs than can readily pass through the capillaries. If the accumulation of blood in the pulmonary vessels exceed a certain limit, there is dyspnœa; but within this limit the blood pressure is sufficient to intensify the pulmonic sound.

I am not prepared to say how much significance pertains to diminished intensity of the pulmonic sound, as a sign of tricuspid regurgitation, or of the very rare lesions causing tricuspid stenosis, and, also, of weakness of the right ventricle from dilatation or from fatty degeneration. My colleague, Professor Janeway, has called my attention to the frequent absence of the pulmonic sound when, from lesions at the aortic orifice, the aortic sound is abolished. I am not prepared to explain this clinical fact. Of course, damage or destruction of the pulmonic valve must either diminish the intensity of the pulmonic sound or abolish it; but lesions producing these effects are so rare, that the clinical study of this sound, in connection therewith, is not easily pursued, and has but little practical importance.

3. *Mitral Sound.*—The mitral sound, disassociated from the sound of impulsion, is short and purely valvular, like the pulmonic or the aortic sound. Its intensity varies considerably in different healthy persons.

Insufficiency of the mitral valve is represented by a murmur, which, like an aortic regurgitant murmur, simply denotes the existence of lesion, without giving information concerning the importance of the lesion, that is, whether the regurgitating volume of blood be small or large. An abnormal weakness of the mitral sound and its absence, are signs which supply, in a measure, this information. These signs thus have a practical value in connection with mitral lesions. This statement applies equally to mitral regurgitant and to mitral obstructive lesions. Weakness or absence of the mitral sound associated with either a mitral diastolic or a presystolic murmur, shows that the obstructive lesion either interferes to a greater or less extent, or abolishes the valvular movements which produce the sound.

Exclusive of mitral lesions, the mitral sound may be weakened in consequence of feebleness of the systole of the left ventricle from dilatation or fatty degeneration. Overfilling of the left ventricle as a consequence of aortic regurgitation, has the same effect, irrespective of the force with which the left ventricle contracts. The explanation is, that, under these circumstances, the excursion movements of the mitral curtains may be slight or *nil*, owing to the fact that at the time of the ventricular systole they are not only floated away from the inner surface of the ventricular wall, but are closely in coaptation with each other. When this is the case, the tension of the curtains produced by the pressure of the intra-ventricular blood in the systole, occasions little or no sound.

The intensity of the mitral sound, of course, other things being equal, is proportionate to the extent of the excursion movements of the mitral curtains. If the stethoscope (binaural) be placed directly upon the heart of an animal of considerable size, (*e. g.*, the sheep), the circulation being maintained by artificial respiration, the mitral and the tricuspid sounds are extremely loud and purely valvular, that is, without any sound of impulsion. Both the mitral and the tricuspid sounds have somewhat of a similar intensity in certain cases of anæmia when the heart is excited by exercise or mental emotion. The explanation, as I suppose, relates to the comparatively small quantity of blood within the ventricle when the ventricular systole takes place, together with the quickness and force with which the ventricle contracts.

All who are familiar with the mitral presystolic murmur, must have remarked an intensity of the sound which occurs at the termination of the murmur, that is, the mitral sound. This presystolic murmur, with the rough, vibratory character which it usually has, I believe denotes adherence of the mitral curtains to each other, leaving a botton hole-like contraction, the mitral curtains remaining flexible. Now, owing to the contracted orifice, the left ventricle, at the time of its systole, is poorly supplied with blood. The movements of the mitral curtains, which I have called the excursion movements, are considerable and the curtains remaining flexible, the conditions are favorable for intensity of the mitral sound. Contrary to the statements generally made by writers, a mitral regurgitant murmur, under these circumstances, is not infrequently wanting. If a mitral regurgitant murmur be present, and the mitral sounds have a notable degree of intensity, it is certain that the regurgitant stream of blood cannot be large, or, in other words, the mitral incompetency is not great.

4. *Sound of Impulsion.*—In healthy persons the sound of impulsion generally predominates over the mitral and the tricupid sound, at the apex and over

the body of the heart. The intensity of this sound varies much in different healthy persons. The abnormal modifications of this sound are, increase of its intensity, on the one hand, and on the other hand, either diminished intensity of the sound or its absence. It is to be noted that this sound is not like the valvular sounds endocardial but exocardial; and, like the exocardial murmurs, however loud the sound may be within the præcordia, it is not transmitted beyond the præcordial region. As we can imitate a pericardial friction murmur by placing the palm of the hand over the ear and rubbing gently the dorsal surface of the hand with the finger, so we may imitate the sound of impulsion by pushing the finger with more or less force instead of rubbing gently; and by light percussion with the finger, the sign, known as metallic clic (*tintement metallique*), is perfectly imitated.

It is the increased intensity of the sound of impulsion which gives to the first of the two heart-sounds (as they are commonly reckoned), its loudness, its length, and its booming quality, in cases of cardiac hypertrophy. The sound of impulsion predominates over the mitral sound, whereas, the latter is intensified and predominates when the action of the heart is functionally excited.

Diminished intensity of the sound of impulsion is denoted by diminution of the length and of the booming quality of the so-called first sound of the heart, the mitral sound predominating. The sound of impulsion is lost when the mitral sound is alone heard over the apex and body of the heart. Diminution and extinction of this sound, are signs of weakness of the vertricular systole from dilatation, fatty degeneration and the softening incident to certain infectious diseases. Clinical observers long since attached practical value to these signs, but their importance is perhaps not yet sufficiently appreciated by practitioners in general. Their value in the treatment of fever as bearing on the use of alcoholics and other cardiac stimulants, were especially emphasized by Stokes.

Removal of the heart from contact with the chest wall, in cases of pericarditis with effusion, abolishes the sound of impulsion, the mitral and the tricuspid sound alone accompanying the ventricular systole; and when the sound of impulsion is wanting, as a rule the aortic sound at the apex is louder than the mitral. The sound of impulsion is inappreciable in listening to the fœtal heart; the so-called first sound is short and valvular like the second sound.

5. *Tricuspid Sound.*—Weakness and the abolition of the tricuspid sound in consequence of lesions affecting the tricuspid valve and orifice, are not signs of much practical value, owing to the infrequency of lesions in this situation.

Enfeebled action of the right ventricle from fatty degeneration, must occasion abnormal weakness of the tricuspid sound. A thrombus of considerable size formed within the right ventricle, may weaken and extinguish this sound. When the right ventricle is overfilled with blood at the time of the ventricular systole, the tricuspid sound must be weakened, for the same reason that the mitral sound is weakened when the left ventricle is overfilled.

Hypertrophy of the right ventricle intensifies the tricuspid sound. This is a better sign, by far, of hypertrophy of the right ventricle, than an increased intensity of the pulmonic sound, inasmuch as the latter involves, as an additional factor, increased blood pressure within the pulmonary vessels. In the rare instances of notable hypertrophy of the right ventricle resulting from congenital stenosis at the pulmonary orifice, the tricuspid sound must be considerably intensified. While I am writing, I have before me a specimen in which the pulmonary orifice is contracted to the size of a goose-quill. The right ventricle is hypertrophied, so that its walls are as thick as those of the left ventricle in healthy subjects, and the walls of the left ventricle are not much thicker than those of the right ventricle in healthy subjects, the normally relative size of the two ventricles being thus reversed. The tricuspid valve is normal. The specimen was from the case of a patient, aged 19 years, who died of scarlet fever, and who complained of no subjective symptoms denoting cardiac disease, except panting on active exercise. A very loud systolic murmur had been observed, and it was supposed to be a mitral regurgitant murmur. The patient was not under my observation, but it is certain that the tricuspid sound must have been much intensified; and this sign, taken in connection with the probable absence of the pulmonic sound, inasmuch as the segments of the pulmonic valve were perfectly rigid, would have been valuable as indicating the true seat of the valvular lesion.

In conclusion, the chief object of this paper, as stated at the outset, is to bring again, after the lapse of twenty-six years, to the attention of the profession, the importance of the clinical study of the heart-sounds, as distinguished from the heart-murmurs. As a motive for the preparation of the paper, I confess a desire to refer to my essay to which was awarded a prize by the American Medical Association at the meeting in Washington in 1858. I believe I may assume to have been, at that time, a pioneer in the clinical study of the heart-sounds in health and disease. This study, since that date, has not received from writers and practitioners that attention which its importance claims. If I mistake not, the majority of those who avail themselves of the information to be obtained by auscultation, do not take pains to interrogate separately the sounds emanating from the heart, but, for the most part, limit their auscultatory observations to the murmurs. In the latest French work on the diseases of the heart, published in 1883, the heart-sounds are hardly recognized as furnishing any important signs in diagnosis.[1] Having said this, I would add that in the German work on pathology and therapeutics by Eichhorst, published in 1883, and in the article by Guttmann in the Real Encyclopædia, 1881, abnormal modifications of the heart sounds are fully recognized among the data for the diagnosis of cardiac affections. I do not doubt that the time will come

[1] Traité clinique et pratique des maladies du cœur, per Michael Peter. Paris, 1883.

when all clinical observers will consider the practical information to be derived from the heart sounds as not less essential than that furnished by the murmurs, taken in connection with the signs obtained by percussion and palpation.

DISCUSSION.

Dr. Richard McSherry, of Baltimore, Md., said:

Mr. Chairman: As an indication of changes in medical acquirement, I may say that when I was a student of medicine in Philadelphia—not very recently—I heard a distinguished professor say he knew nothing of diseases of the heart. The gentleman was very distinguished, certainly not less known to fame, in his day, than his successor, the present honored president of our great Association, but he had not kept up with the progress of his time, for even then the works of Arenbrugged, Corvisart, and Lænnec had taught new and important lessons to the medical world, with which the rising doctors were quite familiar. They at least could not afford to cast ridicule on the "conjuring rod," as the stethoscope was derively called by some of the "Conscript Fathers" of the profession.

The pulse had been the pre-eminent guide, especially in accordance with the teachings of Bordeu and his followers, from whose investigations and speculations, our fathers were led to believe that through it, they could not only take the measure of the circulation, but that it was a gauge of all diseases in all their modifications. Sphygmics, without the aid of the sphygmograph, had almost the attention since given to auscultation and percussion. The learned doctor of the last century, with watch in one hand while the fingers of the other rested on the radial artery, seemed to find in the throbbing of the artery as reliable an indication of the condition of his patient as of the time of day from the hands of his ponderous time piece.

Now the pulse was, and is, a good indicator, but yet like any other one source of information in regard to the vital machine, it may lead to many fallacies, so many, that its real importance came to be underestimated.

Our great master, Lænnec, attached little importance to it by reason of its great uncertainty, saying the ignorant could deduce from it all sorts of indications, while the cleverest could get from it but equivocal conjectures. In truth we know it may deceive us, taken alone, therefore we only rationally use it in conjunction with various other indices of physiological or pathological conditions. It used to be, more than now, a guide in regard to blood-letting, but an improved acquaintance with the central organ of the circulation showed sometimes a strong pulse with a weak heart, and again a vigorously acting heart with a weak pulse (*fictitié debilis*) and it is from the state of the central organ, and not from the action of the arteries, that we may draw conclusions, *pro* or *con*, in regard to depletion.

We can herein find a scientific guide to practice more reliable than the empirical.

We may now begin to contrast the acquirement of the professor of the earlier half of the century, with that of the professor of the latter half, the one declaring that he knew nothing of the diseases of the heart, the other showing that no diseases of any other organ or viscus are subject to equally exact diagnosis. I know of no more striking evidence of the progress of medical science.

But although diagnosis is practicable, it is still environed with difficulties. We cannot get patients to correspond exactly with elastic models, which represent one age, one size, and average chest walls. Of two successive patients, one may be an enormously fat elderly lady, and the next a slim youth whose chest walls have but a fraction of an inch between the ear of the auscultator and the heart of the patient.

There are so many accidental perturbating causes, too, to make diagnosis not impossible but difficult. This may be particularly perplexing when there is great functional disturbance with an early stage of organic disease. I was called, a few years ago, to Mrs. S., from New York, at a Baltimore hotel, who had come to reside in our city. I found the lady suffering with great dyspnœa, due to pulmonary congestion with evidences of mitral insufficiency and regurgitation. She appeared to be alarmingly ill. She had passed the menopause by some months as I learned upon inquiry. I prescribed according to the needs of the case, and when questioned by some lady boarders upon leaving the house, I spoke of disease of the heart. In a day or two she was greatly relieved, but in the meantime there occurred a flow rather to be called metrorrhagia than menorrhagia. The great general perturbation subsided rapidly, and upon its subsidence the heart's action showed comparatively little disturbance. I heard from some friends afterwards that my diagnosis had been hardly commented on by the inquisitive critics of the house. I soon lost sight of the lady, who took another medical attendant. About two years subsequently, I saw announced in the morning papers the sudden death of Mrs. S., after a few hours' illness. Whether there was another pulmonary congestion or other cause of death, I never learned, nevertheless I could not doubt that organic disease of the heart was the efficient cause.

It appears, according to Porah's statistics, that in gravido-cardiac disorders, as they are called, more than two-thirds of the cases are those of mitral stenosis, mitral insufficiency, or the two combined. Women affected thus are in great peril from pregnancy and child bearing, and they are advised to refrain from marriage.

"Landouzy mentions the case of a young girl who had been in the hospital under his care, and whom he had advised not to marry, but who disregarded his advice, married, became pregnant, and after a miscarriage, died suddenly in an attack of asystole." (*Medical News, April 19, 1884.*) In Mrs. S.'s case, although the mother of several children, I presume the perturbation of her general organism was equivalent to that of pregnancy and miscarriage.

We have anæmia (spanæmia) modifying heart sounds, thus it is urged that an elastic contraction of

the orifice of the aorta in anæmic subjects causes a morbid systolic sound at the base of the heart, where no valvular disease can be detected upon post-mortem examination.

Childhood and old age produce their modifications. The evidences of hypertrophy and dilatation are often observed in growing children, which may pass away entirely about the time of puberty, a fact observed by Laennec, and which, from his own observation, induced Dr. Flint to urge caution in regard to giving a prognosis unfavorable and alarming in such cases.

The sharp accentuation of the second sound without valvular disease, or any disease, except in some remote organ, is a matter of perpetual observation. In one of our dispensary patients, but a short time ago, this sign led to an examination, *inter alia*, of the state of the kidneys. A moderate attack of nephritis, with albuminuria, was soon detected, and soon relieved. The cure of the primary disorder corrected the morbid heart sounds which had caused investigation as to the seat of remote disease.

Old age and deep-seated infirmities greatly modify sounds and impulse. I shall never forget my surprise, in my early professional life, upon finding a greatly enlarged heart upon the post-mortem examination of an old man-of-war's man, whom I had seen a few days before death without diagnosticating such degree of hypertrophy.

Upon referring to the text which was then my guide, I found the following explanatory passage:

"The heart's impulse in hypertrophy and dilatation is almost lost in some cases of pleurisy, asthma, œdema of the lungs, or of congestion before death." (*Laennec*). The modifying conditions were all there, and as I had had no opportunity of tracing the progress of disease with the patient, but only saw him when near his end, the oversight seemed comparatively pardonable.

Besides the proper heart-sounds, it may not be amiss to refer to sounds induced by the heart's action indeed, but extraneous. Thus, the clinician often notices puffs or whiffs, heard when the contraction of the ventricles forces air out of the portions of lung lying between the heart and the thoracic walls.

There is a condition in which all of the five normal sounds may be heard, but not in the right place. I had an opportunity of seeing, a little more than a year ago, a case of dexio-cardia under the care of my friend, Prof. Chew, at the University of Maryland Hospital.

This was an illustrative case of traction from the left to the right side. The patient, a sailor, had been under my care some months previously with effusion in the right pleura, and moist râles in the right lung. The heart was not then displaced. When subsequently re-admitted into the hospital, on inspection, the intercostal spaces on the right side were depressed, the ribs drawn together, and the lower part of the chest wall sunken in. Measurement showed that the semi-circumference of the thorax was one inch less on the right than on the left side. The impulse of the heart could be seen and felt near the right nipple, the apex beat being a little to the right of the mammary line. There was perfect dullness on percussion when I use thed hammer and pleximeter over the right side; respiratory murmur was replaced on that side by subcrepitant and bronchial râles audible as far as the base of the chest, and at two points the sounds indicated the formation of vomicæ. On the left side there was a somewhat exaggerated percussion note, and the respiratory murmur was harsh and puerile, though intermingled to some extent with moist râles. * * * * Reasoning then by the power of exclusion, we have remaining as the most probable cause of the phenomenon that to which I think it should be assigned, viz.: the contraction of the right lung and right pleura, the lung being adherent to the chest wall; and as it had undergone contraction, together with the thickened pleura it had drawn upon the mediastinum, and thus effected the displacement of the heart. (For the full account of this rare and interesting case see Prof. Chew's report in Trans. Med. and Ch. Faculty of Md., 1883.)

Every one has probably heard various neurotic (perhaps sometimes choreic?) sounds different from any ordinary physiological or pathological sounds which are difficult to express or to explain. Among these anomalies, one gentleman informs us that he has heard with a robust and nervous girl over the heart above and to the left, a noise very like the clucking of a young chicken, synchronous with the systole. The sound was loud enough to be heard by the bystanders.

In the case of a vine-dresser, an ex-soldier, at 41, there was a hard intermittent sound in the precordial region, not coincident with the systole, loud enough to mask all the normal sounds of the heart, and to be heard at some metres from his person. It began suddenly about a month before the examination. The man thought some living animal had taken up its abode within his chest. The nearest approach to the sound that the auscultator could suggest would be expressed by the lettres grrouou, 75 times in a minute, in a low but harsh childish voice.

No change was made by acceleration or suspension of the respiration.

The reporter of these two cases attempted no explanation, saying that such phenomena would have to be classed with so many others of a transient nervous, or anomalous character, which are never explained even by autopsy. (*Dictionnaire Annual* 1867, from *Jour. de Med. de Brux. par M. Putégnat.*)

Mr. Chairman, when I consented to make remarks upon Prof. Flint's paper, which he was to offer to this Section, I knew perfectly well that little room would be left for addition or subtraction by commentators. This must be my apology for a rather free handling of the subject, instead of adhering closely to the text presented by so eminent an authority.

Dr. J. S. Lynch, of Maryland, referred to the importance of alteration of the aortic sound in Bright's disease. He thought that a large part of the booming character of the first sound was due to the vibration of the aortic walls at each systole of the heart. He could not understand why increase in the blood pressure in the large arteries should not increase the intensity of the aortic sound. Dr. F. had stated

that the intensity of the pulmonary sound was increased by increase of blood pressure in the pulmonary arterial system. Why should not the same result follow increased pressure in the systemic arteries?

Dr. Garland, of Massachusetts, stated that it was often difficult to decide whether a murmur was coincident with, or replaced the cardiac sound. This is important to decide in diagnosis. He spoke of the importance of getting rid of the respiratory movements in trying to determine this point. A murmur will sometimes disappear when the breath is held for a moment. A deceptive murmur is sometimes heard at the base of the heart, to the right or the left of the sternum and up and down its border. It is systolic in time. The peculiarity of this murmur is that it disappears on full inspiration.

Dr. Donaldson thought it a question whether or not the impulse of the heart could produce a sound. Muscular contraction does not produce a sound, or at least not of sufficient force to be heard without very delicate instruments. Experiments have shown that the first sound is produced by the closure of the mitral and tricuspid valves. Where these have been prevented from closing the sound has been absent. In regard to presystolic murmurs, Dr. Leamy, of New York, has claimed with much plausability that they are not really presystolic, but that they occur at the beginning of the systole.

Dr. Flint in concluding the discussion, said that many of the points advanced were in reference to the mechanism of the sounds and in regard to murmurs. These he had not touched on in his paper, and therefore he waived any consideration of them at this time. His paper was concerned solely with the clinical aspects of the heart sounds. In regard to the Germans having taught the subject in the same manner as he did, he would call attention to the fact that 26 years ago he had pointed out this plan. He could not explain why the blood pressure acted differently in the pulmonic and systemic arteries, but such appears to be the fact.

THE MULTIPLE WEDGE PRINCIPLE IN THE TREATMENT OF ORGANIC STRICTURES OF THE URETHRA.

BY JNO. S. COLEMAN, M.D., AUGUSTA, GA.

Read before the American Surgical Association, Washington, D. C., May 2nd, 1884.

It is now nine years since I published, in the *Medical Record* of New York, my application of the multiple wedge principle to the treatment of organic strictures of the urethra.

To quote from that paper: "It ought to be a self-evident proposition, that it is easier to introduce singly the component parts of a wedge, than to introduce it as a whole. Take, for example, a No. 12 conical bougie, even capillary at its point, and attempt to introduce it into a stricture: Where is the point of friction and resistance? Is it not around the entire circumference of the stricture? Diminish the size of the instrument, and in a direct ratio, you diminish the amount of resistance. After having passed into a stricture one of these whalebone guides, the second has to overcome the friction and resistance of but half the circumference of the stricture, and the line of contact with the other bougie. Now that we have passed these two, we have a groove in front and behind them through which we can readily pass the third and fourth, having now to overcome the resistance of but one-fourth the circumference of the stricture and the two lines of contact with the instruments already in position."

Since that time, I have treated by this method some twenty-five or thirty cases with invariable success. There was not, in any case, marked febrile disturbance; but in some few cases there was sufficient constitutional irritation to cause me to suspend the treatment for a day or two.

It is my habit to give, as a prophylactic, full doses of quinine, say fifteen to twenty grains per day.

I will give in detail one case, as it fully illustrates my method.—Capt. H. D. F. presented himself for treatment of a stricture of twenty years' duration.

His urine was always voided with difficulty, and the act usually consumed from twenty to thirty minutes of his time.

There was marked cystitis, as evidenced by the abundant mucus and the decomposition of his urine. The fetor of his urine was so great as to necessitate the immediate removal of the "pot de chambre." His strictures had been ruptured twice during the year 1866, and once in 1867, with Holt's divulsor.

Since the last operation, he had wholly neglected himself. March 16, 1879, after a prolonged and tedious effort, I succeeded in *worming* through his stricture one of the smallest-sized French filiform bougies, and securely tied it in *situ*. Five days afterwards I succeeded in introducing a second by the side of the first, but the cicatricial tissue was so dense and unyielding, that it was not until the fifteenth day that I could pass the third.

On the twenty-fifth day I readily passed the fourth and fifth bougie.

On the twenty-eighth day I introduced the sixth.

At no time was there any hindrance to the passage of the urine.

Feeling assured that now the caliber of the urethra would admit a good-sized instrument, I attempted to remove the bundle of filiforms. In this I was disappointed, for a sufficient amount of concretion had formed to prevent their removal *en masse*. The string binding them together was cut, when they were readily removed, until the last (the first one introduced) which required some little force to withdraw it. Three inches of its distal end had been covered by a *phosphatic* concretion. About one-half the deposit had slipped off the bougie in its withdrawal. (In subsequent cases I have obviated this *contretemp* by removing from time to time those first introduced and replacing them by new instruments).

My patient was now so nervous that he would not permit me to use a sound.

On the twenty-ninth day, retention of urine having

occurred, the patient was chloroformed and a No. 9 steel sound (American scale) readily passed until it reached the prostatic urethra, where it was arrested by the calculous mass. With a little force it easily entered the bladder. To prevent the possibility of another stoppage, to still further cause the *absorption* of the cicatricial material, and for the purpose of irrigation, I now introduced and tied in a No. 16 Nelaton catheter. Twice daily, a solution of salicylic acid and quinine was injected into the bladder, thoroughly washing it out.

On the thirty-eighth day No 16 was removed, and No. 18 introduced and kept in place four days.

Steel sounds were now passed, from time to time, until the urethra was dilated up to No. 30 of the French scale. The concretions left in the bladder were all extruded within a week. (These specimens, together with the bougie, are here presented).

The patient was instructed to pass, from time to time, a large-sized sound.

It is now five years since Capt. F. was under treatment, and there has not been, so far as I know, a single symptom of a return of his disease. I know that many of my associates will object to the multiple wedge because of its tediousness.

I claim for it safety, certainty, and a greater immunity from a return of the disease, than by any other treatment known to me. Also that it will obviate the necessity for divulsion, internal or external urethrotomy. My reasons for not accepting any of the above operations are: First; that they subject the patient to an unnecessary risk of life. Second; that in internal urethrotomy from behind forwards, it is necessary to dilate the stricture to the caliber of a No. 7 or No. 9 English scale before the instrument can be used. Third; that internal urethrotomy from without inwards is, under favorable circumstances, uncertain. Even with Mr. Teeran's tunnelled urethrotome (which I consider least objectionable), mistakes are liable to occur, *vide* his article in the American reprint of the *London Lancet* for 1874, page 210, wherein he states that one of Dr. Gouley's whalebone guides "was cut in two about its centre, six inches of the whalebone being left behind in the stricture. As the patient experienced no pain from its presence, I determined to leave it in the urethra, in the hope that it would set up a profuse discharge, and so facilitate the treatment. In this expectation I was, however, disappointed, and on December 1, I removed the broken portion of the bougie after its seven days' imprisonment."

One of the gravest and most obstinate of my cases was that of a gentleman who, under the care of another practitioner (one whom Sir Henry Thompson characterizes as a "knowing man at anatomy"), had been subjected to a forced entrance into the bladder. Pyæmia followed as a result of this violence, with the formation of five abscesses; one at the posterior border of the right scapula, and from which was evacuated at least one gill of pus; one beneath the left tensor vagina femoris; one beneath the right vastus internus, and which I believe reached the popliteal space; and one upon each internal malleolus.

The life of this patient trembled in the balance for weeks, but he finally made a thorough and complete recovery. His stricture was subsequently relieved by the multiple wedge. My friend Dr. H. F. Campbell, who saw this case in consultation with me, said that it was the only case of pyæmia which he had ever known to recover. I concur in the axiom first enunciated by Professor Syme, that "whenever urine passes outwards through a stricture, an instrument ought with care and perseverance to be got in." Also in the dictum of Sir Henry Thompson: "first and foremost, *dilatation—dilatation always—dilatation without exception whenever* it will succeed." (Italics mine). In corroboration of my position, I beg leave to make the following quotations:

Dr. Frank H. Hamilton, in his "Principles and Practice of Surgery," says of organic stricture: "To the question so often repeated by inexperienced surgeons—What proportion of organic strictures can be successfully treated by gradual dilatation? we answer unhesitatingly, almost every stricture into which the smallest sound or bougie can be introduced. And to the question which naturally follows, are there any strictures, through which urine can pass, which cannot be entered by instruments, we reply, that we have seldom or never met with them, and that such examples must, at least, be exceedingly rare. It is not pretended that all strictures of this class can be entered at once; but only with patience, perseverance, and skill, within a few weeks, or months at most, they will in all probability yield to the instruments, and the bladder will be safely entered.

"It is an error to suppose that a stricture treated by caustic or incision is cured any more thoroughly than when it has been treated by dilatation, or, as it might be more properly called, by absorption. There is no soundness in the theory upon which the claim is attempted to be sustained; and there is no experience to justify the assumption. We have observed the results of all these forcible methods in many cases; and there is the same tendency in all of them to a return of the stricture, unless the dilatation is afterwards maintained by the occasional and regular introduction of instruments. The only objection that can be offered to gradual dilatation, then, is the length of time it may require to complete the cure, as contrasted with forcible dilatation, caustic, incision and perineal section; but, on the other hand, it cannot be denied that, in point of safety, gradual dilatation has greatly the advantage. Death is seldom or never the result of the latter procedure; but from all that we have seen and heard of the other methods, they are followed by a mortality equal to five or seven per cent. Nor does it seem to vary much whether caustic, internal incision, forcible dilatation, or perineal section have been employed. Indeed, some gentlemen of large experience, who favor frequent incisions, admit a mortality of not less than seven per cent., and regard it as a flattering testimony to the excellency of their practice, because in very many surgical operations which are deemed justifiable the mortality is twenty-five or fifty per cent. The fallacy of the argument is too apparent to require exposure. If one is convinced, however, that the condition of the patient demands speedy

relief, or if it should happen that the stricture will not yield to gradual dilatation, the surgeon may resort to some one of the other methods already named, and which we shall now proceed to describe."

Dr. Otis, in his paper on stricture of the male urethra, its radical cure, 1875, closes with the following paragraph: "Strictures of a caliber of less than 16 or 18 of the French scale (7 or 9 of the English), and hence *below the capacity of the dilating urethrotome* as at present constructed, require enlargement by *gradual* dilatation with soft bougies, when this is well borne; if not, by divulsion or the urethrotome of M. Maisonneuve.

After having been brought by any one of these methods above referred to, *up to a capacity permitting the passage of the dilating urethrotome*, complete divulsion of the stricture by means of this instrument may readily be effected." (Italics mine.)

In Dr. Sands' reply to Dr. Otis, on spasmodic stricture of the urethra, he says: "I have seen, in consultation, persons who have suffered from troublesome hæmorrhage, varying in duration from a few days to a month, in consequence of having been cut with the dilating urethrotome—an excellent instrument of its kind, but the use of which has been carried to a dangerous excess. Finally, I have heard of a number of cases in which death has resulted from the employment of the dilating urethrotome. It is hard to obtain access to these fatal cases, which are not usually reported, and which are generally considered a kind of private property. I can state with authority, however, that three fatal cases of operation with the dilating urethrotome have lately happened in our city hospitals, two of which occurred last week in one hospital.

"In two of the cases mentioned, death took place from pyæmia within a week of the operation. In the third case, death occurred from uræmia on the sixteenth day after the operation, which was performed for the division of an anterior stricture so slight as to be detectable only with a bulbous sound, No. 24 French. At the autopsy three deep incisions were found, involving the anterior 3½ inches of the floor of the urethra, the mucous membrane of which, in this situation, was not thickened, and showed no appearance of disease to the eye.

"A tight organic stricture, undivided, was noticeable at the bulbo-membranous junction. This, during life, had been treated by dilatation."

In the American reprint of the London *Lancet*, for 1874, page 404, Mr. Teeran, in his "Description of a Catheter Urethrotome with Conducting Bougie," says: "Then again, most of the urethrotomes are so large at their vesical extremity that they cannot be used, unless the urethra has been previously dilated up to a certain caliber. This remark especially applies to those urethrotomes that divide from behind forwards. For a urethrotome, to be a safe and efficient instrument for the division of tight strictures in the deeper portions of the urethra, it must possess two important qualities: Firstly, its vesical extremity must be so fine that it can be introduced through very tight strictures. It consequently follows that the urethrotome must be one which divides from before backwards, for, *if the stricture be capacious enough to permit an instrument to pass which cuts from behind forwards, the indication for any operation is doubtful; for, if we have dilated the urethra up to half its natural caliber, why should we not persevere with the treatment which has been so successful, and that, too, in the worst and most troublesome stage of the complaint?* (Italics mine.) What we want is to save time in certain cases, where patients have, for instance, to go to sea suddenly, and where time does not permit of a course of treatment by gradual dilatation."

In the abstract of Guy's Hospital reports in the *American Journal of the Medical Sciences*, for January, 1879, page 178, the following views are quoted from Mr. Cooper Forster: "He has done external urethrotomy only once in the last seven years, and then regretted it afterwards, and he has never performed internal urethrotomy.

"He relies on the hot bath, opium, and gradual dilatation."

M. Despres, in a communication to the Societé de Chirurgie, October 16, 1878, on the extraction of prostatic calculus, "did not wish to perform urethrotomy, as he considers this an operation which *renders stricture more fibrous and resisting.*" (Italics mine.)

In the American reprint of the London *Lancet*, for February, 1879, page 71, I find the following emphatic language from Mr. Messenger Bradley upon the subject of internal urethrotomy:

"In boldly criticising it, then, as dangerous and unsatisfactory, I would have you remember that it is criticism of one who has never performed it, and who, I think I may add, never will."

Sir Henry Thompson, in his "Clinical Lectures on Diseases of the Urinary Organs," and, than whom, upon this subject, there is no higher authority, fully sustains me in the position I have assumed. *Vide* page 32 of the above mentioned monograph:

"I will touch lightly on the continuous dilation or the tying in of the instrument. There is a patient up-stairs who is now undergoing it successfully. You have tried, we will suppose, the simple dilatation, and have not made the amount of progress desired, or perhaps the patient's avocations may make it necessary to have a more speedy cure. In either case you may say, if you can give me ten or fourteen days in your room, not necessarily in bed, but on the sofa quietly at home, I can almost certainly bring you from the smallest number up to the highest—that is, by continuous dilatation." As to the length of time required, Sir Henry claims greater potency for the continuous method than I have, as yet, been able to obtain. "In simple dilatation the instrument is simply introduced and withdrawn; in continuous, you tie the instrument in, and allow it to remain for several days. You tie in a small catheter, which, if possible, is to be gum elastic, and so that it just enters the bladder. And you should always take care that it is small enough to pass easily, so that it lies loosely in the canal. Those three conditions being granted, *this is one of the safest and best modes of treating stricture.*" (Italics mine.)

In response to a note of inquiry, my friend, Dr. Eugene Foster, member of the American Public Health Association, and President of the Georgia State Medical Association, kindly furnishes me with the following communication:

AUGUSTA, GA., Nov. 23, 1883.

DEAR DOCTOR:—In reply to your letter of the 22nd, asking my experience in treating strictures of the urethra by your multiple wedge principle, I beg to submit the following answer: I have treated sixteen cases of close organic stricture by your method (several of them of years' standing), and every one of them successful. Your plan of treatment has, in my hands, proven itself all that you claim for it. I am amazed that surgeons generally have not tested its merits, and long since given you credit for your valuable suggestions.

Very truly yours,

(Signed) EUGENE FOSTER.

To Dr. Jno. S. Coleman.

CONCLUSIONS.

In the foregoing paper the following are the principal precepts that have been advocated.

First: That in the treatment of organic strictures of the uretha, urethrotomy whether internal or external, and also the method by divulsion, are attended with serious risk to the patient on account of hæmorrhage, pyæmia and uremia.

Second: That strictures treated by these methods are no less liable to recurrence than those treated by gradual dilatation. Indeed, unless followed by persistent dilatation they are subject to early relapse.

Third: That gradual dilatation of urethral strictures, though of slower progress in the beginning, is almost entirely free from danger, more permanent in its results, and upon the whole the shortest and most perfect method of cure.

Fourth: That in the treatment of tight urethral strictures the *Multiple Wedge Principle* devised by the writer, viz.: That of introducing side by side and one at a time successively a number of filiform bougies, whether applied to the interrupted, or the continuous method, offers to the surgeon the easiest, safest and best method for effecting the solution, or *absorption* of the inodular tissue, and for removing the obstruction.

NOTE.

In the discussion of the above paper, as reported by the *Medical Record* of New York, "Dr. Sayre thought it somewhat strange that the author of this paper claimed to be the originator of the Multiple Wedge System, since, to his personal knowledge, this system had been in use in Bellevue Hospital, New York, for at least twenty years."—To me, it is passing strange that my friend, Prof. J. W. S. Gouley, a member of the staff of Bellevue, and, the author of one of the best monographs on "Diseases of the Urinary Organs," should not have appreciated a system which, according to Dr. Sayre, had then been in use *in the hospital* for eleven years. That he did not do so is manifest from the following language in his letter to me of date Dec. 9th, 1874: "I have myself wedged in two and sometimes three of these bougies side by side, and have thus rendered otherwise impassible strictures amenable to ordinary dilatation. Three years ago, I had some probe-pointed whalebone bougies made very small (capillary) for the first two inches from the vesical end and thence increasing gradually to Nos. ½, 1, 2, 3 and 4, *so that I could accomplish more dilatation with a single bougie at one sitting than I could with two or three ordinary whalebone capillary bougies introduced side by side.*" (Italics mine.) I claim to have made the Multiple Wedge Principle a system for the treatment of tight, close, otherwise impassible strictures; to have given it a name, and, to have been the first to make it known to the profession.

Whewell says: "Names record discoveries."

SPECIFIC TREATMENT OF DIPHTHERIA AND CROUP.

BY GEO. A. LYNN, M.D., MONONGAHELA CITY, PA.

Read to Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

The efforts of many earnest workers in the medical profession, have of late years been directed toward investigating and seeking to isolate the causes of disease. And the tendency is to ascribe the cause of a class of diseases to the presence in the human body of a contagium, spore, or morbific germ, producing zymosis, with more or less intense disturbance of general nutrition, with or without local lesion of the solids.

As yet none of these have been satisfactorily determined. And while this work is necessary to the advancement of medical science, yet it would be of little avail to the human family to isolate, classify, and describe a morbific element, so long as we have no antidote for it, or means of protecting the human body from its ravages.

Prof. William Pepper, in his address on medicine, delivered before this association at Richmond in 1881, said: "It is clear that if we possessed a perfect antidote for the poison of a zymotic disease, our medicinal treatment would resolve itself into the administration of that antidote in suitable doses and forms, with due regard to the state of the digestive organs.

It seems yet presumptuous to hope that we shall ever possess such antidotes for the acute infectious diseases as we have for syphilis and malaria. But I cannot omit a passing reference to the remarkable results that have recently been observed to follow the use of large doses of bichloride of mercury in diphtheria."

After stating that the subject was brought to his notice, by a paper I read before the Washington County Medical Society, and published in the Transactions of the State Medical Society of Pennsylvania for the year 1879,—he gave a notable example of the efficacy of the treatment in a desperate case of diphtheria under his own observation, in which the result was highly satisfactory. And added, "The

extraordinary tolerance of such large doses of bichloride of mercury, and the rapid and progressive improvement from so desperate a state, makes me regard this as one of the most remarkable cases I have ever witnessed."

The object of this paper is to show the proper method of using the bichloride of mercury as a specific in the treatment of diphtheria. The mere use of a remedy does not necessarily constitute its use as a specific. For instance if one should attempt to control a malarial fever with ¼ grain doses of sulph. of quinia given two or three times a day it would most signally fail, and he might say that he had tried the remedy and it had failed in his hands.

So in using the bichloride of mercury as a specific in diphtheria, the dose, time of giving, and stage of the disease, are as important as the remedy itself.

Without entering into a discussion of the pathology of the disease, I may point out what seems to have escaped the notice of most writers on diphtheria, that there are two distinct stages in the disease; one the disease proper which lasts from three to five days, and terminates in the full development of the membrane and the generation in it of a deadly poison, the other, the effects of the absorption of this poison, which is generated in the membrane ONLY, and not in the blood, but when absorbed in sufficient quantity destroys the red corpuscles of the blood. Patients do not die in the first stage of the disease (except in the croupous form) but only from the effects of the poison absorbed from the membrane.

Taking this view of the case to use the bichloride as a specific:

1st. It must be given in the first stage of the disease.

2d. It must be given in large doses, frequently repeated.

The effect of large doses of this remedy, given in the early stage of the disease, is to reduce the temperature, relieve pain in the head, back, and limbs, unlock the secretions, lessen the soreness in the throat, in time, to relieve the nausea and vomiting, restore the appetite; and most of all, it prevents the generation of the poison in the membrane; in mild cases it checks the formation of membrane at once, and causes what is formed to speedily disappear.

Now, as I claim that the greatest virtue of this medicine consists in its preventing the generation of the poison in the membrane, the absolute necessity of giving it early in the disease becomes evident.

It will take physicians a long time to find out the value of this remedy, if they persist in only trying it after everything else has failed, and their patient is in a moribund condition; yet even in such cases, I have known it to prove successful. Prof. Pepper's case, quoted above, if not utterly hopeless, was at least one that very rarely recovers under ordinary treatment.

In using a medicine of so great power, the manner of exhibiting is of some importance. It is best given in solution, so that when excessive nausea is present, the dose may be gradually lessened and the time shortened, giving the stomach a chance to dispose of it, and at the same time keeping up full treatment. By ordering the druggist to make a solution of the bichloride in alcohol of the strength of gr. j to f. ʒj, and dispensing from this, the weighing of a grain and fractional parts of a grain is avoided. Next in importance is a pleasant vehicle in which to give it; this we have in elix. bismuth and pepsin, or elix. of pepsin. Pepsin itself has a good influence in the disease, and is said to have the property of softening the membrane.

In a mild case of diphtheria, I give a child 3 years old $\frac{1}{16}$ of a grain, or in a malignant case $\frac{1}{12}$ of a grain of bichloride of mercury in a teaspoonful of elix. of bismuth and pepsin every 3 hours. To an adult I give from $\frac{1}{12}$ to ⅛ of a grain every 3 hours.

The manner in which this dose is borne in a bad case of diphtheria is a matter of surprise to a physician using it for the first time. It rarely disturbs the stomach, and soon allays existing nausea. I have never seen it produce ptyalism, and it seldom acts on the bowels more than is desirable. I generally order carbonate of magnesia to be given the first night, and after that the action of the bichloride keeps the bowels open. Under this treatment, when commenced early, in an ordinary case the patient will be convalescent by the end of the third day, but in more grave cases, the medicine should be continued to the end of the fifth day—it rarely needs to be given longer.

Thus far, I have been speaking of cases where the treatment has been commenced at the very first appearance of the disease; no tonic or sustaining treatment is needed, and the results are uniformly good; but where the disease has made considerable advancement, and the poison of the membrane is already being absorbed, as may be the case, before the physician is called, the result may not be so satisfactory, and brandy and iron should be added to the treatment.

If we assume that this treatment is no better in results than the general method in vogue, still it has many advantages that strongly recommend it.

There is but one medicine to be given, and there need be no confusion or mistakes. No washes or gargles are needed; no swabs or probangs to be thrust down the throat to strangle and frighten the patient, and make him wish he was dead and at peace; no steaming; no atomizing; none of these—only a teaspoonful of not unpleasant medicine and two or three hours' rest. While I hold that the corrosive chloride of mercury, given in large doses in the very early stages of diphtheria, is a specific, because, when so used, it prevents the generation of the poison in the membrane, and soon arrests its formation, yet membrane is often formed before we are called to the case, or before the remedy has had time to stop the process; and in this case, it may involve the windpipe, or may be primarily formed there, causing diphtheritic croup; and a new danger arises from mechanical obstruction, for which the corrosive chloride gives no relief.

The difficulty of breathing is common to all kinds of croup. It is as great for the time being in simple croup as it is in pseudo-membranous or diphtheritic croup. For this and other reasons it is held by good

authority that the dyspnœa of croup is not due in the main or even in great degree to the mechanical obstruction of membrane in the windpipe, but is rather due to the spasmodic condition of the glottis, and of nervous origin. It is for the relief of this dyspnœa that we resort to tracheotomy, at all times a dangerous operation, and in diphtheritic croup almost hopeless. In any kind of croup the operation, if successful, only enables the patient to breathe. Its effect on the disease is rather to aggravate than otherwise. If we had a remedy that would control and relieve the spasmodic condition of the glottis in croup we would have little need for this operation. And I think we have this in the chloride of gold. A few years ago I was using the chloride of gold, as recommended by Niemeyer in his practice, in some obstinate cases of hysteria, and observed that it had marked effect in nervous affections of the air passages, and was thus led to try it in a bad case of diphtheritic croup, of which I will give a brief history.

In the afternoon I was called to see a child five years of age suffering from a severe attack of diphtheria in advanced stage, it then being the third day of its sickness. Pulse 120, quick, small; temperature 104; respiration 40; tonsils covered with heavy membrane; glands of the neck swollen; tongue heavy furred; breath fetid; nausea and vomiting. From the breathing of the child I apprehended invasion of the larynx.

I ordered one-twelfth of a grain of corrosive chloride of mercury in a teaspoonful of elix. bismuth and pepsin every three hours, with instructions if the child grew worse to send for me.

About 3 o'clock in the morning I was called up, with the information that the child was much worse, and had croup. If this statement was true it made the case nearly hopeless, and I determined to try the effect of the chloride of gold.

Taking with me a solution of the strength of a grain to an ounce of water, I went to see the patient. As reported I found the child much worse,—almost asphyxiated from croup,—lips livid,—cheeks flushed,—dusky red,—and unable to articulate. I ordered twenty drops of the solution of the chloride of gold,—dropped in a glass with a little water,—and given every hour till some relief was obtained. The bichloride of mercury to be continued. In the morning I was agreeably surprised to find the patient very much better,—breathing easy but still having croupous cough. Continued the chloride of gold in the same dose every three hours. The next day the child was still better, asking for food, and quite relieved of croup. The chloride of gold was then withdrawn, continuing the bichloride of mercury.

From this on, the child improved steadily and in three or four days was convalescent.

Since then I have used the chloride of gold in all cases of croup. In simple croup it acts as a specific, and nothing else is needed, and but few doses of this.

The chloride of gold should be given in solution in distilled water. As it is very deliquescent and difficult to weigh, I direct the druggist to dissolve the contents of a 15 grain bottle,—as it comes from the manufacturer,—in 15 drachms of distilled water, and dispense from this solution.

A caution is necessary in administering,—not to use a spoon,—on account of the strong affinity the preparation has for metals, especially for silver. I direct it dropped in a glass with a little water, and as it is almost tasteless there is no difficulty in taking it. The dose may be from $\frac{1}{50}$ to $\frac{1}{20}$ of a grain every one to three hours.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

ON THE ACTION OF DIGITALINE.—M. Kaufmann has been conducting a series of experiments with this drug in the laboratory of M. Chauveau, the results of which he gives in the *Revue de Medicine* as follows: (He used principally the larger animals, viz.: dog, sheep, ass and horse, for his subjects.)

1. In animals that are in good health, digitaline does not produce diuresis, either when given in large or in small doses.

2. Used hypodermically or administered in powder by the stomach, it produces a diminution in the quantity of urine, and an increase in the quantity of urea.

3. Administered by the stomach in a liquid form and weak dose, it diminishes the secretion of urine and of urea.

4. It does not produce diuresis except in certain dropsies due to affections of the circulation.

GENERAL CONCLUSIONS.

1. Digitaline acts as an energetic local irritant.

2. The general effects are best shown when the solutions are passed into the veins, the trachea or the stomach.

3. The subcutaneous and intra-muscular injections produce a reactive fever.

4. Digitaline produces a slowing of the pulse with a small dose, a slowing followed by an acceleration with a moderate dose, and an acceleration with a strong dose.

5. The inhibition of the heart is due to a bulbar and intra-cardiac excitation of the moderating system, and the acceleration is due to a central and peripheric paralysis of the same system.

6. It raises the intra-cardiac diastolic and systolic pressure, and consequently increases the mechanical work of the heart.

7. It increases the energy of the cardiac contractions and increases the volume of the waves.

8. During the inhibition the cardiac contractions are often associated by twos or threes.

9. During the acceleration the heart beats are regular.

10. In a weak dose, the pulse becomes stronger. In a strong dose, it is strong at first and then becomes weaker.

11. The pulse often takes on the dicrotic or tricrotic form.

12. Weak doses increase slightly the arterial tension by central peripheric excitation of the vasomotors; stronger doses increase it at first, and then diminish it.

13. It diminishes the rapidity of the blood flow in the arteries.

14. It lowers the temperature of the rectum.

15. It diminishes the quantity of urine secreted by healthy animals.

The Treatment of the Vertigo of Menieres Disease by Large Doses of Sulphate of Quinia.—M. Charcot at a recent clinic at *la Salpetrière* (*Gazette des Hopitaux*), presented two cases of this vertigo, with the characteristic shrill sounds, intense hissings in the ears, followed by the sensations of movement in various directions.

The first patient presented these symptoms to a very marked degree on entering the hospital; he had been under the treatment since that time, for a space of three and a half months. First the vertiginous symptoms disappeared, until now there only remains the staggering on walking, or the cerebellar vertigo, which is much more difficult to overcome than the cerebral vertigo. He was treated as follows: For twenty days he was given daily twelve (12) grains of sulphate of Quinia. Then a suspension for ten days. For twenty-seven days the same dose, followed by a suspension of eight days. For twenty-two days the same dose, suspension for nine days. For nineteen days to date of observation the same dose.

The second case was completely relieved. This patient was a woman who was obliged to keep her bed for seven or eight years on account of the severity of these symptoms. She has been for a number of years under this same course of treatment. In 1875 she already showed marked signs of improvement—no longer having habitual vertigo, nor excerbations, nor disordered movements, nor those sensations of falling which kept her to her bed for so long a period, but at that time she still walked with difficulty, with hesitation and staggering like a drunken person—or like one having been deprived of the use of their legs for a number of years. Now she presents the appearance of one completely cured, walking without the slightest hesitation, and with a firm step. Her health is perfect.

On the Use of Chromic Acid for Cauterisation in Diseases of the Nose, Pharynx and Larynx.—Dr. M. Hering has an article on this subject in the *Revue Mensuelle de Laryngologie, d' Otologie et de Rhinologie*, in which he considers:

1. That chromic acid, placed upon metal sounds, is an energetic caustic, but little painful, irritating the mucous membranes but slightly, and used to the best advantage in adenoid tumors, granulations, soft polypi, parenchymatous hyperplasias, etc.

2. A too energetic cauterisation over too extended a surface, may produce either by the absorption of the caustic, or by its introduction into the stomach through the pharynx, symtoms of intoxication, vomiting, etc., accidents which may be prevented by the use of the salts of soda in the solutions. Hering has never seen any dangerous collapse, or choleraic intestinal catarrh follow these conditions.

3. Infinitesimal quantities are sufficient for cauterisation, an operation which must be performed with care; the surplus of the acid being neutralized, and the cauterisation not repeated until the inflammation has disappeared, and the eschars have dropped off.

4. Chromic acid produces a better effect than any other of the medicaments used at the present day in the treatment of chronic catarrh, with tumefaction and moderate hypertrophy of the turbinated bones; and its best quality is that it produces a rapid cure without causing great pain.

OBSTETRICS AND GYNÆCOLOGY.

Puerperal Glossitis.—M. E. Blanc, in *L' Union Medicale*, gives the case of a primipara, 21 years of age, as an example of glossitis evidently associated with pregnancy and the puerperal condition.

The inflammation of the tongue set in at the fifth month of pregnancy. The woman noticed, she said, thick skin forming on the dorsal surface of her tongue, which fell off in a few days, leaving the mucous membrane bare, which soon cracked. Mastication was very painful. Soon new masses of epithelium reformed to disappear in their turn. This same series of phenomena was frequently reproduced, in spite of a variety of topical applications the characters of which were not familiar to the patient. Ptyalism was moderate and there had been no gingivitis.

During the last month of pregnancy this glossitis disappeared spontaneously, to reappear at the time of labor. Blanc saw the tongue covered with a pultaceous coating, which was thick and white, and which disappeared in two days. Then the mucous membrane became red, glazed as if varnished in the centre, and white on the edges, except at the red points formed by the prominent papillæ. For two days the tongue was completely denuded. Finally the epidermis reformed, and the mucous membrane again became normal about the ninth day.

This condition of the tongue suggested scarlatina, but the patient examined with great care, never had the angina or eruption, and the temperature had always been normal. Moreover, at no time was there any albumen in the urine. It was impossible to find any other cause for the glossitis than pregnancy and the puerperal state, which so often provokes in other cases gingivitis and ptyalism.—*Le Medecin Practicien.*

MEDICINE.

On the Atonic Dilatation of the Stomach.—Prof. Germain Sée and Dr. Albert Mathieu have published in the *Revue de Medecine* the first part of an interesting paper on this subject, with the following résumé:

1. Besides those dilatations of the stomach which are due to a relative or absolute obliteration of the

pylorus, there are others in whom this mechanical cause cannot be considered.

2. In a certain number of these cases, lesions appreciable by the microscope, give a sufficient cause for the exaggerated distension of the organ. (Interstitial cirrhosis of alcoholics, fatty degeneration, etc.)

3. The dilatation of the stomach is produced in a passive manner among feeble individuals, exhausted by a general cachectic condition, in consequence of this weakness, and perhaps, particularly from a want of action of the muscular walls of the abdomen.

4. In the other conditions, there is simply a paralysis of the stomach, which numerous observations assign as the consequence of a general traumatism or an epigastric traumatism.

5. Most frequently simple dilatation of the stomach occurs in individuals who present particularly a condition of general neurosis.

6. It occurs in the course of crises which seem to indicate a successive and alternate intervention of a special state of spasm and atony of the gastro-intestinal motor system.

7. These crises, often painful, sometimes accompanied by diarrhœa, are habitually provoked by an occasional or general cause, such as the emotions, moral shocks; or by a local cause such as excess in, insufficiency or bad quality of food. These crises are in this way the local manifestation of a constitutional spasmatonic neurosis (the neurasthenia of certain authors).

8. Constipation and flatulence seem to play an important part in the mechanism of the development of these gastro-intestinal disturbances with a predominant gastric dilatation.

9. Dyspepsia rarely occurs previous to the dilatation but frequently succeeds it. It seems to be characterized by the presence in marked quantity of peptones in the urine.

10. In all cases permanent gastric dilatation does not occur until after alternations of spasmodic action (the cause of the pain and diarrhœa) and of atony (the cause of distension).

The Pathology of the Cervical Sympathetic.—Möbius has given considerable space to this subject in succeeding numbers of the *Berliner Klinische Wochenschrift*, of which an excellent analysis is given by Dr. Francotte, in the *Annales de la Société Médico Chirurgicale de Liége* as follows:

The cervical sympathetic has been the object of numerous experiments of which the principal results are the following:

1. Section of the sympathetic produces dilatation of the vessels in many regions of the head; excitation determines their constriction.

2. Irritation of the sympathetic produces transpiration in different parts of the head.

3. Section of the sympathetic produces a contraction of the palpebral opening and of the pupil, with retraction of the ocular globe; irritation gives the opposite effect.

4. On irritating the cervical sympathetic, there follows a secretion from the parotid and sub-maxillary glands; the saliva is thick and consistent.

5. Irritation of the sympathetic produces cardiac acceleration.

In the healthy man conditions of excitation or paralysis of the cervical sympathetic have often been observed. In the state of excitation there is always, naturally, a connection with the reflex processes, which may have their point of departure at the cerebral cortex. Under the influence of intense emotions, such as fear, the face pales, the brow is covered with sweat, the eyes start out of their sockets, the palpebral openings and the pupils dilate. Passions that are not so strong, as shame and anger, act principally upon the vaso-motor fibres. Painful irritations carry their action particularly to the ocular fibres, and are followed with dilatations of the pupil. The most important cause of the paralytic states of the cervical sympathetic is age. In the old person the pupil and the palpebral opening become contracted, the eyes are sunken and the pupil re-acts but feebly to sensible excitations.

All these phenomena have nothing to do with a direct irritation or a lesion of the cervical sympathetic. The application of a direct irritation, mechanical or electric, to the nerve has often been tried, but the results are open to criticism. It is a question as to whether the results were due to a direct irritation or to a reflex process from irritation of the skin. The interpretation of clinical symptoms is subject to the same error, phenomena may be attributed to a direct lesion of the sympathetic which are due to reflex action. The symptoms observed cannot be attributed to the sympathetic unless a limited alteration of the nerve is noted, or unless there is found in the living subject, a lesion which can act upon the nerve by its seat and nature.

To illustrate this, Möbius details a case which first came under his notice in May, 1882. A student had received a knife wound in the right cervical region, the instrument penetrating to the depth of 12 centimeters (4.7 inches). The wound healed without complications, the patient resumed his studies. He noticed that his right eye became easily fatigued and that it wept after he had read for a time; he noticed at the same time a disagreeable feeling in the right side of the face. On examination, a recent cicatrix was found on a level with the angle of the lower jaw, and extending for a length of three inches, parallel to the anterior border of the sterno-cleido-mastoid with an infiltration cylindrical in form. The right palpebral opening was narrower than the left, the right conjunctiva was slightly injected and more moist than the left. The situation of the eye-ball, its consistency and the appearance of the cornea seemed to be alike on both sides. The right pupil was half the size of the left. Both re-acted equally to light and accommodation. On using the faradic forceps the left pupil dilated a little, the right remained motionless. No notable difference in moisture on either side of the face, but the patient declared that he did not perspire in the neck, nor on the right side of the face, which seemed to be warmer to him. The temperature in the right external auditory meatus was 97.7°, in the left it was 96°. The right ear was redder than the left. The radial pulse was the same on

both sides, 66 per minute. The patient said that it had formerly been 74, and now he frequently felt palpitations, particularly in the afternoon, that were formerly unknown.

Treatment, massage and electrization was ineffectual, but the patient improved somewhat, the palpebral opening enlarged somewhat, the right eye was less easily fatigued, the palpitations diminished and disappeared.

July 18, 1882 (10 weeks about), palpebral opening a little larger, contraction of pupil, injection of conjunctiva, elevation of temperature in auditory canal, redness of ear and absence of perspiration persisted. Pulse, 72–74.

Jan. 15, 1883. Induration in neck almost gone. Right cheek markedly flatter than the left, right eye more sunken in the orbit, seems smaller to the touch, no difference in consistency between the two eyes. Palpebral opening and pupil contracted one-half. Right ear the warmest. Injection of conjunctiva disappeared. No difference to the patient between the temperature and perspiration of the two sides. Palpitations returned. Radial pulse the same on both sides, 88.

Jan. 9, 1884. Right cheek flatter than left, right ear warmer and redder, right eye more sunken, pupil and palpebral opening contracted. Re-action of pupils to light, more sluggish in right, re-action of convergence equal in the two sides, on cutaneous irritation the left pupil dilates a little. Eserine produces a very slight contraction of the right pupil, atropine produces a much greater dilatation in the right than in the left pupil. No atrophy of the tongue, but it is very tremulous. The right side of the neck is very sensible to pressure, the left is much less so. Pressure over the vertebral column at the third and fourth cervical, and fifth and sixth dorsal, as well as in the epigastric region, is painful.

The two hands tremble, particularly the right. The right arm possesses all its motility and its sensibility, it gives a record of 61 with the dynamometer, while the left gives 91. Heart normal, but the patient complains of palpitation. His memory is enfeebled, he is timid and impressionable.

Now for the grouping and utilizing of these symptoms:

1. Contraction of the pupil on the side of the lesion. Never very marked. Re-action to light sluggish, to convergence normal. Reflex dilatation absent.

2. Narrowing of the palpebral opening. This is very marked, and due to paralysis of Müller's muscle.

3. Retraction of the eye-ball. This symptom is less frequently noted than the two preceding, it is only developed later in the course of the affection, and depends, according to Nicati, upon (a) the shrinking of the eye-ball; (b) the atrophy of the fat of the orbit; (c) the paralysis of the muscle of Müller. Besides there is sometimes a softening of the tissues of the eye-ball itself dependent upon deficient nutrition.

4. Vascular symptoms in the head. These are often wanting, but they may escape attention and only manifest themselves under the influence of cold, of heat, and of the emotions. Most frequently, redness, elevation of temperature and hyperidrosis are observed. But again there may be pallor, coldness, anidrosis, and atrophy of the face. Nicati supposes that these contrary groups of symptoms may correspond to two different phases of the affection.

5. Increase in perspiration. This is attributed to a dilatation of the vessels, but this is contradicted by cases where the part being warmer and redder than healthy portions, does not perspire to a greater extent.

6. Emaciation of the affected part. This is independent of the vascular disturbance, and in this case did not come on for nine months.

7. Modification of the heart's action. This case gives the first record of such a symptom, it causing a slowing of the pulse.

8. Modifications of the salivary secretion. This has never been noted in man. Nor was there any alteration of the thyroid gland. The cerebral symptoms are of doubtful significance. All the nervous symtoms in this case (impressionability, trembling, hyperæsthesia, etc.) are considered by Möbius as reflex, a general neurosis from traumatism.

He considers this case then as an unilateral paralysis of the sympathetic. No cases of double paralysis, or of double irritation of the sympathetic are known. What we know of irritation of the sympathetic is from one case by Eulenburg, and three cases by Seeligmüller. The case of Eulenburg's (pressure on the sympathetic by a goitre) showed dilatation and immobility of the pupil, moderate exophthalmia and paresis of accommodation, coldness of half of the face, and acceleration of the heart's action. In Seeligmüller's cases (traumatic irritation of the sympathetic) there were three times dilatation of the pupil which remained sensitive, and which in two of the cases dilated more upon pressure or electrization of the sympathetic region; in one case dilatation, in two cases contraction, of the palpebral opening; in the one case protrusion of the eye-ball; in one case pallor and coldness of half the face, which in a few days was markedly flattened.

The etiology of affections of the sympathetic embraces most frequently a local cause, as compression by goitre, aneurism of the aorta, carcinoma and other tumors of the cervical and parotid glands, cicatrices, abscesses and various traumatisms. Seeligmüller considers that lesions at the apex of the lungs and the pleura may be communicated to the sympathetics; in fact phthisical patients often present such symptoms.

In concluding his article, Möbius considers migraine, Basedow's disease, facial hemiatrophy, angina pectoris, and progressive muscular atrophy; but does not admit in them any primitive lesion of the sympathetic.

Erratum.—The names of John Mills Browne and Albert Leary Gihon, were inadvertently omitted from the list of permanent members from the U. S. Navy and incorrectly included among those from the District of Columbia, pp. 713 and 717, Vol. II, No. 26, Journal of the Am. Med. Association.

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JULY 26, 1884.

"OPIUM SMOKING AS A THERAPEUTIC MEANS."—There are two drugs comprised in our list of therapeutic agents which, however potent for good, are dangerous to human happiness by reason of the very properties which make them boons to mankind. These are opium and alcohol. Each is sure to bring mental, moral, and physical ruin upon its devotee. Each is capable of effecting as complete debasement as did the magic wand of Circe when it transformed Ulysses's companions into swine. The very insidiousness with which these drugs allure their victims increases their danger. Every practitioner of extended experience must be able to recall instances in which the physician's prescriptions proved the foundation of either one or the other fatal habit. We have in mind a young man of brilliant parts who attributed his incurable love of strong drink to the whisky and quinine ordered by the doctor as prophylaxis against malaria. Facts like this are too well authenticated to be denied, and even to mention them may savor of truisms. What then is to be said of the frequency with which the opium habit is contracted under similar circumstances? Often it is the only alternative to an existence rendered otherwise unbearable by excruciating pain. But does this consideration lessen the evils of the habit?

Whether the internal consumption of the narcotic be on the increase, as maintained by some, or not, there is one method of its use which has certainly assumed alarming proportions within a few years — we mean opium smoking. This vice of the East stares us in the face wherever the almond-eyed Chinaman has made himself a temporary citizen. Would that his vile habit might also depart with him! Our land is particularly open to this seductive vice because of the immigration of the Chinese. Hence, we feel it our duty to protest against the influence likely to be exerted by the article which appears in the *American Journal of the Medical Sciences* for July, 1884. It is entitled "Opium Smoking as a Therapeutic Means," and gives a resumé of the report which Dr. Thudicum made at the Twelfth German Medical Congress of his experience with the narcotic when smoked.

"According to Thudicum, opium smoking gives excellent results in a large number of affections. It rapidly cures a violent case of coryza, causing an almost immediate cessation of cough, and has a very calming effect in phthisical cough. In chronic coryza, also, two or three pipes smoked in the morning will soon bring about a complete cure; and in hay fever it is an excellent remedy. The author has also seen most excellent results in chronic neuralgia and migraine, which had stubbornly resisted large doses of quinine. Long-standing migraine may be cured in three or four months if the patient will persist in the treatment. Certain cases of hyperæsthesia, which sometimes lead to insanity, are also cured by this method.

"Of a large number of cases treated by Thudicum, only one has acquired the habit of opium smoking, so that the method by no means tends to produce the objectionable habit. A person may smoke for a long time and no inconveniences result other than a little digestive trouble. But, on the other hand, care must be taken that the patient smokes a sufficient quantity, as opium, in small doses, is a tonic and stimulant."

We quote the above in order that the reader may judge for himself if the spirit of the article be not calculated to do harm. What is the character of the diseases for which Thudicum recommends the measure? Acute and chronic coryza, phthisical cough, hay fever, chronic neuralgia and migraine, "certain cases of hyperæsthesia that lead to insanity." Are they not the very class of affections, excepting acute and chronic coryza, which, by their very stubbornness, predispose to the acquirement of such a habit? Moreover, it is expressly stated that the means must be often persevered in for several months in order to effect a cure. Finally, are these diseases so unyielding to other remedies as to make opium-smoking the *dernier ressort* and counterbalance the risks run?

Dr. Thudicum has been fortunate in having seen the opium habit confirmed in only one out of the large number of cases in which he has employed it. And it is to be hoped that he will continue to be as

fortunate. But we believe a more extended use of the measure would lead to a different opinion from that uttered by the article in the *Journal*, and that it would hardly endorse, as comparatively harmless, a means so seductively capable of mischief. We sincerely trust it will be long before our American therapeutists countenance this employment of opium. That the habit was formed in one case is proof that it is not devoid of danger, and serves to emphasize the necessity of practitioners of medicine exercising all possible caution in prescribing agents so capable of producing misery.

Simple Absorbent Cotton Versus the "Antiseptic Pad and Dressing."—We have lately been informed by the *British Medical Journal*, June 14, 1884, of an antiseptic pad, manufactured by an American house in London. It is said to have the advantage over the ordinary sponge, in that it absorbs readily without having been previously wetted, and its absorbent power is said to be sixteen times its own weight. It consists of concentric layers of absorbent cotton and cocoa-nut fibre within a covering of gauze. An antiseptic substance is enclosed in a friable capsule in the centre.

Two names of prominent men are associated with this "pad," and yet we feel certain that the reflecting practitioner will consign such a device to the general category of "liver" and other "pads." What special advantage it can afford, except to the manufacturer, over the simple absorbent cotton, we certainly fail to see; and we refer to it only in order to extol the merits for various uses of the last-mentioned article. Absorbent cotton is already widely appreciated by all surgeons. It is constantly used by them, either in its simple form, or medicated as they require it. It can be taken from the packet which the manufacturers furnish us, and at a moment's notice made into a pad of any desired size. Under those circumstances it can be subjected to the physician's sense of touch, so as to realize its quality, whereas, if it is enclosed in a shut sack, any inferior material can be used.

Now, although the surgeon has learned to appreciate the value of absorbent cotton, we are disposed to think that its use is not sufficiently appreciated in the summer complaints of children, in the lying-in room, and certain affections associated with involuntary discharges. Should we be affected with the cholera epidemic now raging in Europe, a judicious use of absorbent cotton for the absorption of discharges may be of incalculable service; and by burning it when it has accomplished its purpose, we may do more towards confining the disease within reasonable limits than might at first seem possible.

Excessive Medication.—In the Journal for June 21, 1884, we alluded to the strong tendency recently manifested by members of the profession to give large doses, frequently repeated, of active medicines as germicides, prompted by the prevalent germ theories concerning the specific causes of disease. Allusion was made more directly to the use of mercurial preparations in the treatment of diphtheria. Our remarks elicited from Dr. Jno. S. Coleman, of Augusta, Ga., a brief letter stating that he had given to a little girl, aged three years, suffering from a severe attack of diphtheria, 84 doses of the bichloride of mercury, of one-eighth of a grain each, in nine days. The medicine produced neither purging nor ptyalism nor any other unpleasant effects; but the patient recovered and is now in good health. Another child in the same family had been attacked with malignant diphtheria a few days earlier, and died without having used the bichloride of mercury as a remedy.

It will be observed that Dr. Coleman's little patient took over ten grains of the corrosive chloride in nine days. But this does not equal in heroism the use of calomel by Dr. I. P. Klingensmith, of Blairsville, Pa., as detailed by him in a short article in the *Medical Record* of New York for July 12, 1884, p. 36. To a child 28 months old, attacked with severe diphtheria, he says: "I at once ordered 20 grains of calomel, which was followed by ten grains every hour until the third day, when, the membrane beginning to separate at the edges, the mercurial was discontinued. During the first three days of the treatment, a total of *seven hundred and twenty* grains of calomel were given." He relates two other cases, one a child aged three and one-half years, to whom he gave at once 20 grains of calomel, and 10 grains subsequently every hour for 15 hours, making 170 grains in less than 24 hours; and the other, a child aged four years, to whom he gave, in similar doses, 130 grains in 12 hours. All three of these children recovered. In commenting on the cases, Dr. K. says: "The calomel purges, but not to excess, causing simply free and copious evacuations of a greenish appearance." And, he adds, "I have never known ptyalism to occur in a single case."

In a paper read in the regular meeting of the New York Academy of Medicine, held April 24, and reported in the *Medical News* for July 19, Dr. A. Jacobi decidedly recommends the use of mercurials efficiently in the treatment of pseudo-membranous croup and diphtheria. He gives decided preference to the bi-

chloride and next to the oleate by inunction. But the largest doses he recommends for children from six months to three years old, are from one-fiftieth to one-twentieth of a grain in dilute solution, (1 part to 3000 of water), repeated every one or two hours during the stage of active exudation. And although these doses were generally borne without producing any bad effects, yet he mentions one case, a girl of six or seven years af age, in which three doses of one-twentieth of a grain each, produced griping and frequent bloody stools, making it necessary to reduce the dose to one-fiftieth of a grain. That some patients will tolerate very large doses of mercurials without any bad results, especially when laboring under diphtheria and some other acute general diseases, was demonstrated clinically half a century ago, when scruple, half drachm, and drachm doses of calomel were by no means rare. We have seen many patients who have taken such doses without apparent injury. It was also demonstrated that in most of such cases a large part of the calomel passed through the alimentary canal without absorption, as was probably the case with three-fourths of the 720 grains given by Dr. Klingensmith to his little patient. The bichloride given in dilute solution is much less likely to pass through the bowels without absorption ; and though much less likely to induce ptyalism, is more disposed to cause inflammation of the mucous membranes, than calomel.

Our best writers on medical jurisprudence and toxicology adduce cases, in which three grains of the bichloride taken at once, produced intense gastro-intestinal inflammation and death. And may it not readily happen that, the same remedy given in smaller doses, but repeated so frequently as to consume more than one grain per day for several days in succession, may accumulate until more than three grains are present in the system at one time? And should such a case happen to result disastrously to the patient, and the practitioner be arraigned for mal-practice, might he not find much difficulty in making a successful defense?

We do not allude to this subject for the purpose of criticising the case related by Dr. Coleman, or those of any other individual member of the profession, for when diphtheria appears in its more severe form, we have no doubt the early and efficient administration of the bichloride of mercury constitutes one of the most reliable means of combating the disease. We desire only to remind the present generation of practitioners that the rapid return to the use of large quantities of active medicines in the treatment of acute diseases under the stimulus of germ theories, is only repeating, under different names and theories, a practice abundantly tested half a century since. And should the present tendencies continue another decade, so far as mercurials are concerned, ptyalism in all its stages and destructive effects will again become as familiar to the profession and the community as it was to the preceding generations. Yet it must not be inferred that we altogether condemn the use of mercurials in medical practice. So far are we from this, that we have continued their cautious, and we trust judicious, use, in the treatment of a great variety of diseases, through all the changes of medical opinions and fashions of the last forty-five years. But we should dislike to see the extravagances of a past generation again become generally prevalent.

CHOLERA REPORT.—During the last week the epidemic has been steadily increasing in severity, in Marseilles and Toulon. For the twenty-four hours ending yesterday evening, July 20th, at 6 o'clock, the number of fatal cases in Toulon was forty-six, and in Marseilles during the same time, the deaths from cholera numbered fifty-seven, and this notwithstanding over sixty thousand of the citizens of Marseilles had fled from the city by railways and by overland routes as early as the 15th of the month.

Impending famine seems to threaten with added fatality, the panic-stricken people that remain.

Two cases are reported in Transylvania, and again we have the report of two fatal cases in Paris. It is the impression of those best able to judge, that the epidemic is destined to spread throughout Europe. It seems that the Paris Academy of Medicine declines to express to the government its views of the best methods of prevention, and of the treatment of cholera, since its advice as to the holding of the Fete of July 14th had been disregarded, and as regards quarantine measures. Portugal has extended her quarantine to all European shipping. Austria is moving to secure protection to herself as well. At Odessa two weeks quarantine has been established against all shipping from the Mediterranean.

The American Consul at London is instructed to announce that all vessels from Europe must have certified clean bills of health from the American Consuls at the ports from which they sail, or they will not be permitted to enter American ports.

On the 19th inst. President Arthur issued the following timely proclamation:

BY THE PRESIDENT—A PROCLAMATION.—Washington, D. C., July 19.—By the President of the United States of America, a proclamation:

While quarantine regulations are committed to the

several States, the General Government has reposed certain powers in the President, to be used at his discretion in preventing a threatened epidemic. Feeling it my duty, I hereby call upon all persons who, under existing systems in the several States, are intrusted with the execution of quarantine regulations, to be diligent and on the alert, in order to prevent the introduction of the pestilence, which, we all regret to learn, has made its appearance in some of the countries of Europe, between which and the ports of the United States intercourse is direct and frequent. I further advise that the cities and towns of the United States, whether on the coast or on the lines of intercommunication, by sound sanitary regulations and the promotion of cleanliness, be prepared to resist the power of disease and to mitigate its severity, and I further direct the Consuls of the United States in the ports where the pestilence has made or may make its appearance to exercise vigilance in the carrying out of the instructions heretofore given, and in communicating to the Government of the United States any information of value relating to the progress or treatment of the disease.

[SEAL] CHESTER A. ARTHUR.

By the President:

FREDERICK T. FRELINGHUYSEN,
Secretary of State.

It is hardly necessary to emphasize what we stated last week as to the necessity of thorough sanitation of the cities, thoroughfares and homes of our American people. What we wish now to urge, is, that especially in our great muncipalities, where thousands of inhabitants are densely congregated, the work of cleaning and of disinfecting shall *not be delayed.* If cholera comes, let its coming be without invitation. It is no time to renovate cities when the heat of summer is most intense, and to open the cesspools and sewers when the plague is upon us. Vigorous action by those vested with authority will do much to dispel fear, and calm apprehension, and so, in the most effectual manner yet known, disarm the plague of its terror. Let the needed work be done thoroughly and at once.

SOCIETY PROCEEDINGS.

SEWERAGE SYSTEMS AND THE EPURATION OF SEWAGE BY IRRIGATION AND AGRICULTURE.[1]

BY HENRY J. BARNES, M.D.

Many of the cities and towns of Massachusetts as well as those throughout the country have in the near future this question to dispose of in a scientific and practical manner. Political economy and the public health demand attention to this subject already in many communities. An epidemic of typhoid fever in a neighboring town would be a very dangerous menace to the health of the citizens of Boston in consequence of the water supply of the latter being the receptacle for the drainage and dejections of the former. A beautiful lake in the vicinity of Boston is made so filthy by a large sewer discharging into it that twice a public cry of reprobation has been raised against it. The valley of one of our large rivers has been rendered almost uninhabitable by the drainage of a large inland city. It is now said that the citizens of Chicago are much of the time drinking their own sewerage, as a result of taking water from a lake with which their sewerage system connects; and we may add that the city which is not troubled by its system of drainage is the exception and not the rule.

The effects of pollution by sewage of wells, springs, rivers, and ponds used for domestic purposes, are so generally recognized that no attempt is made to collate the many, many calamities which have befallen cities, towns, villages and families through ignorance or indifference as to what disposition is made of the refuse matter of dwellings, and we must also acknowledge that a comprehensive system of disposing of sewage must be inaugurated in the near future, both in towns and by every individual hamlet. The present method of gathering in cesspools or subterranean channels, which discharge in a manner to jeopardize health and comfort of ourselves and neighbors, must be abandoned for a system which shall dispose of and purify the sewage in a practical manner, or we must give up some of our large rivers for sewerage systems, or construct at enormous expense metropolitan systems, both of which have proved unsatisfactory, or failures in Europe.

London's metropolitan system, which discharges in the maritime Thames about twenty-one miles below the city, of which so much was expected, and cited as an example Boston might imitate, has proved far from what was anticipated. The sewage, instead of going to sea, or being diluted to an extent which would render it innoxious, is deposited by the tides above and below the mouth of the sewer in such a quantity as to cause a great cry of indignation from the inhabitants living along the banks of the river, and numerous petitions to parliament asking for relief have been presented.

Torquay and Brighton, draining directly into the sea, have experienced similar results, and their systems are pronounced failures. The once beautiful Bay of Naples is to-day a reeking pool of filth. A recitation of the many examples of pollution of rivers both in Europe and America, and the attendant evils, is unnecessary, but the following list of English cities where the courts have enjoined drainage into rivers, suggests what we may anticipate in this country: Bradbury, Blackburn, Chorley, Doncaster, Harrowgate, Leamington, Merthyr-Tydvil, Rugby, Tunbridge Wells, Warwick, Kendal, Birmingham, Bolton le Moor, Bradford, Coventry, Leeds, Halifax, and Rochdale.

[1] Read before the Section for Clinical Medicine, Pathology, and Hygiene of the Suffolk District Medical Society, April 30, 1884.

In 1870 the Royal Commissioners reporting on the pollution of the Mersey and the Ribble stated "that sewage discharged in running water is not materially changed for many hours by oxidation." This they demonstrated by the following experiment: A volume of filtered sewage from a drain in London was mixed with nine parts of pure water. Analysis of this mixture showed it to contain per 100,000 parts 267 parts of carbonaceous matter and .81 parts of nitrogenous matter. It was exposed each day to light and air, shaken and drawn by small siphons in a manner to cause a fall of over three feet from vessel to vessel. At the end of 96 hours there remained 25. parts of carbonaceous matter and .58 parts of nitrogenous matter, indicating a loss of but 17 parts of carbonaceous matter and .23 parts of nitrogenous matter. At the end of 192 hours it had lost but 25 per cent. of carbonaceous matter and 33⅓ per cent. of nitrogenous matter. This experiment was made in a temperature of 68° F., and was designed to show the change likely to take place in the current of a river running at the rate of one mile per hour, and carrying ten per cent. of sewage. They concluded that there was not a river in England long enough to dispose of a moderate amount of sewage through oxidation.

J. Babut du Mars says, "it has been proved that the waters of rivers do not lose a material amount of azote in a run of over three hundred miles. And the Prussian Government has consequently forbidden the pollution of rivers and seaports by the discharge of the detritus of cities."

The effects of imperfect sewerage systems are forcibly portrayed in a paper printed in the *Boston Medical and Surgical Journal* of February 22, and March 1, 1883. In that paper Dr. Morton Prince collates many epidemics of typhoid fever from this cause. He says, "it is estimated that in this State (Massachusetts) alone there are ten thousand cases of typhoid in each year," and every one knows that a large proportion may be fairly charged to defective drainage. How imperfect sewerage causes this disease was well illustrated at Nahant, Massachusetts, in 1881, and thoroughly reported by Mr. Ernest Bowditch. A paragraph from page 246 of the supplementary report of the State Board of Health 1882–83 would properly introduce the question discussed in this paper, as the successful epuration of sewerage by irrigation and agriculture depends upon where, and to what extent, nature provides in the soil for the elimination of filth. Mr. Bowditch says, after noting the improvement in the sanitary condition of the town the year following the epidemic, "while the conclusions as to soil recovery may be derived from insufficient premises, perhaps calling attention to the subject may lead to the discovery of facts warranting systematic research in this direction that may be of great sanitary value." Dr. Frankland wrote in May, 1881: "There are in nature powerful agents for the destruction of disease. It cannot be doubted: otherwise the human race would long ago have been exterminated. The problem is not entirely solved, but experience appears to demonstrate this action on sewage employed on irrigation, for when known to be infected by cholera and typhoid fever in England, it has never produced these diseases in the inhabitants living on the sewage farms and consuming the produce."

Many and varied are the systems advocated and methods adopted with the object of disposing of sewage. Surface drainage, cesspools, subterranean drainage, and the pneumatic system of Lienur are employed for collecting and discharging into rivers, ponds, bays, oceans, and on the land are the most common means of distribution. Filtration, precipitation, the employment of chemical agents, irrigation and agriculture are some of the measures adopted for the purpose of epuration.

CESSPOOLS.

Depositing sewage in cesspools is one of the most common as well as antiquated methods. The cesspools are emptied at intervals varying from one week to five or more years. They involve the concentration of fermentescible matter and the consequent generation of gases dangerous to health, beside the vitiation of subsoil water. The soluble organic matter contained in them is capable of very long journeys under ground, with the loss of coloring matter only, as many analyses have proved. Their use should not be tolerated, except the walls are made impervious to liquids, and they should be emptied at short intervals. A writer on the subject says: "The time is not far distant when they will be pronounced a relic of barbarism."

DOWNWARD INTERMITTENT FILTRATION PRACTICED AT KENDAL, ENGLAND.

The population is about 14,000. There are 450 water closets connected with the sewers, which discharge 868,000 gallons per day. A reservoir of deposit was first constructed, which overflowed on a farm of about fifteen acres, with the object of utilization by agriculture. The area of the farm proved insufficient to epurate the sewage completely, and five acres of filter beds were added. These, with the farm, suffice to purify the water. In 1875 the products of one-third of the farm, consisting of cabbages, beets, celery, and rhubarb, sold for $500. Oats and rye on another third $375, and on the remaining five acres $225 worth of hay was raised, making a total of $1,100 worth of produce from fifteen acres. The application of the sewage cost $550.

The operation of the same system constructed by I. Bailey Denton, at Abingdon, Great Malvern, and Halstead, England, and at Forfar, Scotland, has proved satisfactory, inasmuch as sufficient matter is eliminated to allow the effluent discharge into neighboring rivers, although it contains a large amount of putrescible matter, as indicated by analyses. It just escapes the ban of the Pollution Act.

THE PNEUMATIC SYSTEM OF LIENUR

is employed at Amsterdam for a limited number of the inhabitants. The sewer-pipes are made of iron, with air-tight joints. An air-pump makes a vacuum.

Closets are opened simultaneously once a day in section after section of the city; the content is drawn to the mouth of the sewer, from which it is carried away in barrels and deposited on the land. Its enormous cost bars its employment where any other system can be used.

UPWARD FILTRATION AT BIRMINGHAM, ENGLAND.

Population about 350,000. Eight thousand water-closets connected with the sewers, which discharged about 14,000,000 gallons per day in the river Tame. An injunction was obtained to prevent the discharge into the river, unless the sewage was first purified. A reservoir of deposit was built, and a system of upward filtration, but complaint of the continued pollution of the river necessitated its abandonment. The city then attempted irrigation and agriculture, but this was also enjoined. Finally, after much delay and litigation, the city bought 120 acres of land, and on the advice of an engineer constructed a new reservoir of deposit, where they treat the sewage with lime. To 13,434,860 gallons is added thirteen tons of lime each day. This clarifies the water to a certain extent by causing a deposit of about 300 tons per day, which is carted out and buried on the land.

It has been an easy matter to separate material in suspension from drain water by filtration, but as this represents only about one seventh part of the value of sewage for fertilizing purposes the process, though simple, has never proved renumerative, and chemists have been employed to suggest agents which would precipitate the soluble matter, which represents six sevenths of the value. Lime has been employed at Tottenham, Blackburn, and Leicester, but the Royal Commissioners report of each a failure, inasmuch as the drain water after being thus treated contains a large amount of putrescible matter.

TREATMENT OF LIME AND CHLORIDE OF IRON AT NORTHAMPTON, ENGLAND.

To 250,000 gallons of sewage is added about 100 quarts of lime and six quarts of chloride of iron, which are thoroughly mixed, and afterwards passed by upward filtration through a layer of calcinated iron eight inches thick. The waters come out without color or odor, and is then allowed to flow into the river. At first there was no complaint, notwithstanding the presence of a large amount of putrescible matter, but later the river became offensive, and the court has enjoined the discharge of such water in it.

THE A. B. C. METHOD OF SILLAR.

A mixture consisting of six hundred parts of alum, twenty-five parts of burned clay, one part of blood, ten parts of salt, nineteen hundred parts of clay, fifteen parts of animal charcoal, five parts of magnesia, twenty parts of wood charcoal, ten parts of manganate of potash, and two parts of calcined magnesia is added to the sewage to be treated in a proportion of about one pound of the mixture to 250 gallons, thoroughly agitated, and then allowed to settle in large reservoirs, which are alternately emptied, and the detritus taken out, dried, and sold as a valuable fertilizer. The residuary water still contains putrescible matter, and notably more ammonia than was in the sewage before being treated.

(*To be concluded next week.*)

STATE MEDICINE.

ILLINOIS STATE BOARD OF HEALTH.

The regular quarterly meeting of the Illinois State Board of Health was held in its rooms in the Capitol building at Springfield on Wednesday, July 2, 1884.

Present, at the afternoon session, Drs. Haskell, McKenzie, Kreider, and Rauch; Dr. Haskell presiding in the absence of the President; and, at the evening session, in addition to the above, Newton Bateman, the President, in the chair.

Dr. George N. Kreider, of Springfield, appointed to succeed Mr. Reen, of Peoria, resigned, was introduced to the members, and took his seat with the Board.

The minutes of the last quarterly meeting, April 17 and 18, were read and approved; after which the regular order of business was suspended, and the Board went into executive session on certain cases of colleges and practitioners under the Medical Practice Act.

During the evening session, the following quarterly report of the Secretary was presented:

QUARTERLY REPORT OF THE SECRETARY, APRIL 1,—JUNE 30, 1884.

During the quarter ended June 30, 1884, there were received in the Secretary's office 604 communications, letters, papers, etc., exclusive of 107 diplomas submitted for verification, and the affidavits and other papers accompanying applications for certificates in 226 cases. There were sent out, during the same period, 827 letters, postals, circulars, etc., and other communications, and the usual quantity of the Board's publications—reports, registers, preventable-disease circulars, epidemic disease blanks, forms of ordinances, etc. Two hundred and forty-two packages were received, and 212 sent out, by express. Seventy-three telegrams received, and 102 sent.

Certificates entitling to practice medicine and surgery, under the Medical-Practice Act, were issued to 170 graduates upon diplomas of colleges which have complied with the requirements of the Board, entitling them to be classed as in good standing, and to 4 upon length of practice in the State. Under the authority conferred upon the Secretary at the last meeting, seventeen applicants for certificates, holding diplomas of colleges which had not fully complied with the Board's requirements, have been notified that they would have to submit to examinations on the branches or subjects omitted by their respective schools. In nine of these cases, the applicants have already been examined and certificates issued; five of these were examined in hygiene only; three in hygiene and general education; and one on all the branches, including general education. Three

declined to appear to be examined, and have left the State, and the remaining five are now awaiting their examination.

Examinations of five midwives have been made, and certificates issued to three of these who passed successfully, and seven to others upon diplomas and licenses, or other recognized credentials.

MEDICAL EDUCATION.

At the annual meetings of the various medical organizations, State and National, which have been held during the past three months, the subject of the preliminary education of medical students has received more than usual attention. Almost unanimously, the individual members of the profession, and these various organizations as units (with one single exception), have pronounced in favor of exacting proof of proper preliminary education before admitting candidates to the lecture classes. There is, practically, no opposition to the movement, the only dissentients now remaining being a few members of college faculties influenced, probably, by a fear of diminished classes. With few exceptions—and these diminishing in number from time to time—the better class of colleges have already adopted this requirement. Every announcement for the session of 1884–85, thus far received, makes this a distinctive feature, but it is to be wished that the colleges would state specifically in their announcements the kind of examinations applicants would be subjected to, or the proof of fitting education required, instead of merely saying, as some of them do, "a preliminary education is required."

As illustrating the widespread influence of the effort to heighten the standard of professional acquirements, it may be stated that, at a recent meeting of the Nebraska State Medical Society, the qualifications for admission to membership were so amended as to require that applicants must be graduates of colleges which in all respects conform to the standard of minimum requirements of this Board.

In the further interest of medical education, I think it the duty of the Board to exert its influence toward securing legislation for the proper and adequate supply of material for the study of practical anatomy. Colleges in this State have been embarrassed, during the past year or two, in their efforts to properly instruct their students in this most important branch; and the difficulty is increasing. Surgical knowledge and skill cannot be acquired without an intelligent, practical study of anatomy; and in order to secure this, the methods and sources of the supply of material need to be more definitely recognized and regulated by law.

THE PUBLIC HEALTH.

Scarlet fever and small-pox prevailed to some extent during the first half of the quarter, mainly in the southern portion of the State. Except the few cases in Chicago and those in Kendall county, all the small-pox cases occurred in the south half of the State, but scarlet fever was more generally diffused. Both diseases have been of a mild type, with a moderate death rate. As the season advanced there has been the usual increase in the diseases of hot weather, but not characterized by any noteworthy features.

With regard to further action concerning small-pox, in view of the probability of its epidemic spread from abroad, as shown by its increased prevalence in London and elsewhere, and its frequent introduction into the State from neighboring States, I would suggest that it is desirable to call the attention of sanitary authorities and others to these facts and to the experience of the last few months, which shows that when the disease is introduced into a community where vaccination and re-vaccination were not thoroughly carried out during the recent epidemic, there is still danger of serious trouble. It is also important that county superintendents, school boards and others interested, should have their attention again directed to the fact that the school vaccination order of the board is permanent and continuous, and that its thorough enforcement is expected so as to prevent any accumulation of unprotected or imperfectly protected scholars, from term to term. To this end I think it necessary to again print and distribute copies of the order, with necessary instructions, together with supplies of certificates and blanks for returns to be made through the county superintendent by the first of January next.

Cases of glanders and other infectious diseases among animals continue to be reported to the Board. On the 28th of June Dr. C. N. Cooper, of Batavia, Kane county, reports having a patient under treatment, suffering with glanders, and wishes instructions and advice as to his actions. The amended pleuro-pneumonia and glanders act has by no means relieved the Board of responsibility in these cases. The public naturally apply to the health authorities in matters pertaining to health, and thus far the State Veterinarian is only reached in a large number of cases through this office. Whether further legislation is necessary on this subject, and what form it should take, are matters which seem to require the consideration of the members.

CHOLERA.

An epidemic spread of Asiatic cholera now seems imminent. What is known as the Damietta outbreak failed to secure a foot-hold in Europe last year, and with the exception of a few isolated cases in Russia and one fatal case at the Smyrna lazaretto—all in July of 1883—it is believed that the disease, from this outbreak was confined to the delta of the Nile. France, it is true, was threatened by the arrival at Havre, of the steamer St. Bernard in June last, with one case on board; but preventive measures were successfully instituted on that occasion and the evil then averted. About the first of May, 1883, the British troop ship, Crocodile, was reported in quarantine at Portsmouth, England, having then had eight cases of cholera on board, six of which proved fatal; but on this occasion also the disease seems to have been confined to the infected vessel. The French have been less successful in their recent precautionary attempts, if it be true, as is now alleged, that the Toulon outbreak was due to a fatal case on board the transport Montebello from China—the infected

clothing of the case not being destroyed. Later advices state that the disease was brought from Egypt in the troop-ship Sarthe. It has already spread to Marseilles and the villages above Toulon, and cases are reported in Italy and elsewhere.

Whether the disease will cross the Atlantic from the east will largely depend, of course, upon the efficiency of the measures employed to confine the contagion to its present localities. Very general activity is manifested by all the European governments and sanitary authorities; and it is to be hoped that they may prove successful, although the dissenting opinions of the English authorities as to quarantine may lead to friction between them and the continental authorities. Meanwhile we are threatened not only from Europe, but from the opposite side of the globe, cholera seeming to be spreading in China, and to have broken out in Japan.

In view of this condition of affairs I have thought it my duty, on behalf of the Board, to urge that the organization of the National Board of Health should be maintained, and have advised to that effect, hoping that it may be possible to still secure the necessary appropriation for this purpose in the Sundry Civil Service bill. Should cholera continue to spread on the Continent it is more than likely to find an entrance into this country, despite the efforts which may be made by local and State authorities to exclude it by quarantine regulations. Want of uniformity, failure to coöperate, commercial considerations, and local conditions, all combine to impair the efficiency of any system of quarantine; and to the extent that these obtain, in the absence of a uniform system, is the danger of failure increased. The remedy, of course, is in the National control and administration of quarantine; and the present emergency furnishes another argument for the continuance of the National Board of Health, with adequate appropriations and increased power and authority.

As to what should be done by us as a Board in the present aspect of affairs, I would say that my own experience and observation lead to the conclusion that it is not judicious to place entire reliance on quarantine measures, no matter how administered, should the disease become epidemic in countries or ports with which this country has close commercial relations. Asiatic cholera, although it may invade places in good sanitary condition, finds its most congenial habitat where filth, in any form, abounds. The best attainable sanitary condition—clean streets and premises; the prompt and proper disposal of organic refuse, night-soil and all forms of sewage; well ventilated habitations with dry, clean basements; a pure and sufficient water-supply; and good individual hygiene, including personal cleanliness, a proper diet, and regular habits of life, these are the best safe-guards against Asiatic cholera, as they are against most diseases. If it should unfortunately appear in a locality whose sanitary condition is good, as thus outlined, there is every reason to anticipate its prompt arrest by well understood measures—thorough isolation of cases, disinfection of discharges, etc. Cholera is pre-eminently a disease to be fought by sanitation.

THE FIFTH ANNUAL REPORT.

Continued delays in the public printing office have still further postponed the publication of the fifth annual report of the Board; but a full force of compositors is now at work upon it, and assurance is given of its speedy completion.

The material for the sixth annual report is in an advanced state of preparation, and, together with the revised official register of physicians and midwives, which is also nearly ready, will be put into the printer's hands as soon as the fifth annual is out of the way.

All of which is respectfully submitted.

JOHN H. RAUCH, Secretary.

At the conclusion of the reading of the Seretary's report, which was accepted and ordered placed on file, the following resolutions were adopted, looking to putting into effect the various suggestions embodied in the report:

Resolved, That the importance of the study of practical anatomy, as a foundation for surgical knowledge and skill, demands that the supply of material for this study be more definitely regulated, and its necessity recognized by law, and that the Illinois State Board of Health respectfully urges the attention of law-makers to these considerations.

Resolved, That the increasing prevalence of small-pox in London and elsewhere, indicating a probable renewal of this epidemic tendency, and its frequent introduction into Illinois from neighboring States within the past few months, make it desirable that vaccinal protection be secured as fully as possible in every portion of the State; and to this end the Secretary is hereby authorized to call the attention of sanitary authorities and others to the subject, and to take the necessary steps to push the further enforcement of the school-vaccination order of the Board, so that all new scholars, and those who have not heretofore fully complied with its provisions, may be properly protected against small-pox before the advent of cold weather.

Resolved, That while epidemic cholera may be excluded from this country by thoroughly-enforced quarantine regulations, yet the best attainable sanitary conditions of every locality in the State should be secured, so that, in the event of Asiatic cholera effecting an entrance notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances; the Secretary is, therefore, hereby authorized to take such action as, in his judgment, will most promptly obtain a thorough sanitary organization of the State, and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

On motion of Dr. Haskell, the Secretary was given discretionary authority to act for the Board in any case of emergency which may arise in the interims between the regular meetings,

During the executive session the cases of a number of colleges, with reference to the requirements of the Board and their standing under the Medical Practice Act; the important features of the office correspondence during the quarter, and the cases of a number

of practitioners, were considered, and the necessary action was taken in a large number of these. The following certificates were also ordered to be revoked:

Certificate No. 913, issued to Peleg W. Blakeley.
Certificate No. 1,103, issued to Fritz Tripple.
Certificate No. 4,027, issued to William Becker.
Certificate No. 3,190, issued to S. Meyer.

After the transaction of sundry routine business, auditing of accounts, etc., which occupied the hours of the morning session, the Board, at 11:30 A. M., adjourned.

BOOK REVIEWS.

CLINICAL LECTURES ON MENTAL DISEASES. By T. P. CLOUSTON, M.D. Edin. F.R.C.P.E., Phys. Supt. Royal Edinburgh Asylum for the Insane. Lecturer on Mental Disease Edinburgh University *etc.*, *etc.* Philadelphia 1884. H. C. Lea's Sons, pp. 550.

To this English work the publishers have added, in the American edition, an abstract of the Statutes of the United States and of the several states and territories relating to the custody of the insane, compiled by Charles F. Folsom, M. D., of Harvard Medical school.

Local laws are so much at variance that perplexing questions are at any time liable to confront the practitioner who has not at hand some such guide to the legal regulations governing these matters.

The body of the work—433 pages in all—is a clinical study of mental diseases of the commoner types based on a wide experience and supplemented by ample statistics.

The subject is treated from so entirely a practical standpoint as to lack something of the fulness of a systematic work, particularly in the line of the history of investigation and the works of other authors.

An effort is made to present the subject attractively by appealing directly to the facts of the pathology and dispensing with elaborate description.

Two hundred and sixty cases from Dr. Clouston's own practice are carefully and critically examined. Seven colored lithographic plates of unusually fine execution add to the value of the book.

Typical cases of insanity rather than rare and unusual forms are for the most part selected for illustrations.

This book is to be commended highly for the clearness of its style and its telling array of cases. The latter are so introduced in the body of the descriptive passages as to make a very attractive combination of didactic and narrative writing. The work will become a standard one on both sides of the Atlantic.

PRACTICAL PATHOLOGY, A MANUAL FOR STUDENTS AND PRACTITIONERS. By G. SIMS WOODHEAD, M.D., F.R.C.P.E. Published by Henry C. Lea's Son & Co., Philadelphia.

This most excellent work does not purport to be a systematic treatise on Pathology, but a guide to the practical work involved in the study, preparation, and examination of morbid tissues. The more important changes of each organ are described and illustrated, though all the changes which occur could not possibly be considered in the space devoted to the work. The plan of the work follows the various organs and tissues from the postmortem table to the microscope. The first chapter treats of postmortem examinations, the instruments needed and modes of procedure. The second chapter describes very briefly the microscope, for some prior knowledge of this is advised and taken for granted; and gives directions for its use both in examining fresh and prepared tissues. It tells fully how to make injections, how to harden and cut tissues, and discusses clearly the merits of, and describes the methods of using, the common and best staining fluids. The author advises the use of the freezing microtome as enabling the busy student to avoid waste of time in learning to cut sections by hand. Microtomes are now made cheaply, and with a couple of days' practice excellent sections can be made. In regard to staining fluids, picrocarmine is deservedly the favorite with our author. Full details are given of how to make and use the various staining reagents. With the next chapter the consideration of the different organs of the body is begun.

In this short review we cannot consider the remaining chapters. They give clearly a description of the microscopical appearances of the various lesions, and then minute directions for each step in the preparation of the diseased tissue for microscopical examination, and its appearance when examined.

The last chapters discuss the common parasites, both animal and vegetable.

Among the chief and most praiseworthy features of the work are its illustrations. The cuts are not mere diagrams, but accurate drawings. Many of them are original. They are also colored so as to accurately represent the stained tissue.

This book is worthy of much praise, and will without doubt be found of the greatest assistance to those beginning to do practical pathological work. And even those accustomed to the use of the microscope and its aecessaries will find in it many valuable hints. It is to be hoped that the work will contribute much to make popular, practical pathology.

MEDICAL GERMAN, By Solomon Deutsch, A.M., P.L.D. J. H. Vail & Co., Publishers.

This book is intended to aid the physician in his intercourse with German patients and in reading German medical works. It will be found useful both by those who possess only an elementary knowledge of German and by those more advanced in its study.

The text is separated into two main divisions. The first is practically a glossary of medical terms and words likely to be used in conversation with the sick. The second consists of conversations, questions and answers. There are also German and English indexes which contain nearly 1,400 words.

The utility of such books is undeniable, but they only supplement a study of the grammar and literature. They can not supplant it.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

London, June, 1884.

No doubt many who intend visiting the meeting of the Medical Congress to be held at Copenhagen in August, will avail themselves of the offer of the Ocean Steam Yachting Company to take passengers to the meeting in their steam yacht "Ceylon" for a fare of £30 each person, this to include living on board in port, table wine, and boat service. This arrangement sounds pleasant, and will obviate the discomfort of living in crowded hotels.

Since the suspension of the Contagious Diseases Acts, the various female Lock Hospitals in the towns where the acts were previously enforced seem to have been practically empty, whilst the percentage of venereal diseases amongst the troops seems to be on the increase, in spite of the assertion of those opposed to the working of the Contagious Diseases acts. A deputation of gentlemen opposed to state interference with prostitution have waited on the Home Secretary at the House of Commons and presented a memorial asking the complete and unconditional abandonment of the Acts. The deputation was informed that resolutions of the Justices of Plymouth and from the Grand Jury at Colchester, as well as from the authorities at our other chief military stations, had been received, deploring the increase of immorality and the growth of the want of decorum in public thoroughfares. This the deputation did not agree with, and upon withdrawing undertook to oppose any proposal to re-introduce the acts. It is to be regretted that a small section should be so bent upon doing away with such a useful measure as the acts proved themselves to be during many years.

The cold weather that Western Europe is having has caused many to delay their return from the Mediterranean "littoral." It is to be hoped that those answerable for the "wagon lits" service have taken precautions to have reserve carriages in case of any accident, as at the beginning of the season many invalids, who had paid for proper accommodation on the journey, too often were hurried into ordinary carriages *en route*, through some slight mishap to the saloon in which they started necessitating its being left behind at some stopping-place. Another complaint was that more tickets were issued than compartments were provided.

The Westminster Hospital has one of its wards decorated by the lady members of the Kyrle Society. The walls have been painted representing the four seasons, and have a most cheerful aspect. The Society is to be congratulated upon its success in this case, and if its example is followed in other institutions, it will be a great boon to those who have to spend many weary hours within their walls.

At the annual meeting of the London Anti-Vivisection Society, the committee announced the financial position of the society to be very flourishing. One of the speakers remarked that science only claimed to have been successful in six or seven points from vivisection, while its advocates did not deny that four or five of these might not have been brought about by other means. Dr. T. G. Vawdrey proposed and carried the following resolution: "That vivisection as a method of scientific investigation is erroneous in theory and misleading in practice, and ought to be prohibited." He said vivisection is erroneous in theory, because it rested on the false assumption that experiments on animals might be applied to the purposes of man. Experimenters could never be certain whether the result of their experiments would be applicable to man, and although they were sometimes, in most cases they were not. At the conclusion of the meeting, a petition embodying the views of the society, for presentation to Parliament, was agreed to.

The general hospital at Peterborough has been destroyed by fire, and the hundred patients who were in it at the time, had a very narrow escape. Within half an hour of the outbreak the building was a mass of flames. One patient was under chloroform undergoing an operation, when the alarm was given.

It is stated that a new edition of the Dictionary of Medicine, edited by Dr. Quain, is going to be brought out. No dictionary of medicine so compendious, and at the same time so authoritative, has yet appeared in any language. Each contributor "volunteered or was invited to write on a subject with which he was specially familiar," and the list of authors is as representative of the best literature of the profession in England, Ireland, and Scotland, as any that could have been framed. If the name of a distinguished authority is missed here and there, this is only the inevitable result of there being other, and sometimes younger men, equally qualified and more conveniently situated for the purpose. A sense of proportion in assigning the space to the several subjects in a vast field of knowledge must be constantly and watchfully observed, along with due consideration for the value of everything that a distinguished contributor would wish to write on his favorite theme. It is given only to a firm hand and a delicate tact to achieve success in such an enterprise, and the measure of Dr. Quain's success must be, on the one hand, the compact form and size of his dictionary, and on the other, the endless variety of the articles and the value of the signatures that they bear.

It may not be generally known that Dr. Laennec, of Paris, in 1819, first made use of a "new method" for exploring the state of the heart and lungs.

Laennec related to one of his friends the story of his discovery. Walking through the court of the Louvre, he observed some children amusing themselves by holding a cylindrical piece of wood to the ear and scratching with a pin on the further end of it, whereby they produced a noise louder than the scratching of a pin produces under ordinary circumstances. Next morning, visiting his patients in the Hospital Necker, he extemporized a hollow cylinder out of a roll of paper, and applied it over the heart of one of his

patients. This was the first stethoscope which he used for some time, afterward superseding it by one made of cedar-wood. He published a treatise on mediate auscultation in 1819. After a short period of indifference, the method began to be warmly taken up, notably by Dr. John Forbes, and Dr. Stokes, of Dublin, and in a thoroughly scientific spirit by Dr. C. I. B. Williams, who published his "Rational Exposition of the Physical signs of the Diseases of the Lungs and Pleura" in 1830, and who still lives to connect the generation of Laennec with the present.

The appointment to the newly instituted University Professorship of Pathology at Cambridge has taken place, the electors being the Vice-Chancellor, Professor Foster, Dr. Gaskell, Dr. Humphrey, Sir I. Paget and Dr. J. B. Sanderson. Their choice fell upon Charles Smart Roy, M.D., who graduated at Edinburgh in 1875. The endowment is £800 a year exclusive of fees. The holder is not allowed to undertake private practice of medicine and surgery.

G.O.M.

DOMESTIC CORRESPONDENCE.

FROM WASHINGTON.

MEDICAL MATTERS BEFORE CONGRESS—MEDICAL INSPECTORS AT FOREIGN CONSULATES—July 2.—The Sundry Civil Appropriation Bill as before the United States Senate, contains the following clause which was adopted. Expenses of State Department. To enable the Secretary of State to appoint from time to time for such period as is absolutely necessary, medical inspectors to be attached to the United States Consulates in countries where yellow fever, cholera or plague exist in epidemic form, $10,000.

NATIONAL BOARD OF HEALTH.—The same bill contains a clause, which was passed to the effect of striking out the existing clause, "That all laws or parts of laws authorizing the appointment of a National Board of Health be, and the same are hereby repealed;" and to insert, "For pay and expenses of the members of the National Board of Health, $8,000; and for the investigation of questions affecting the public health, $10,000."

July 3, in the House of Representatives, the following report from the Committee on Printing (a joint resolution) was passed:

Report from the Committee on Printing on joint resolution (H. Res. 260,) authorizing the printing and binding of additional copies of the reports of the National Board of Health:

The reports for the years 1880, 1881, and 1882, of the National Board of Health contain many valuable papers, covering the results of long-continued and careful investigation in matters affecting the public health. These investigations have been made by men the most eminent in their several lines of study, and it is gratifying to be able to state that the leading sanitarians, both of this country and of Europe, agree in their estimate of the extraordinary value of the service thus rendered by the board. The reports embrace the results of investigations into yellow fever, cholera, diphtheria, the sanitary condition of our summer resorts, the effect produced upon water by its filtration through soils, the sewerage systems of Europe, the flow of sewers, and the analysis of water, together with reports on many other subjects relating to the public health.

The report on water analysis is regarded by all competent judges to be the most complete and valuable inquiry into the sanitary relations of potable water which has yet been made.

The report on the filtering capacity of soils made under the direction of Professor Raphael Pumpelly, of the Geological Survey, has awakened the liveliest interest among sanitarians all over the world, and has been pronounced to be one of the most important contributions ever made, to our knowledge, of the propagation of epidemic diseases.

The report on the sewerage systems of Europe gives in detail the general systems and their application, together with their cost of construction and maintenance in the principal cities of Europe.

The subject of city and town sanitation is now attracting attention throughout the country, and all reports bearing upon sewerage, water supply, etc., are eagerly sought for.

It is unnecessary to refer in detail to all of the investigations made by the board. The constant demand for them from engineers, health authorities, students in colleges, and sanitarians both in this and foreign countries fully attests their value.

Of the reports published since that for 1879, only the usual number has been printed and the supply of those for 1880 and 1881 has been exhausted, while the report for 1882 has but recently been delivered.

In view of the importance of the subjects treated, and of the great value of the contributions thus made to the general knowledge of sanitary subjects, the board has had its reports stereotyped in order that the cost of reproduction might be reduced to the lowest possible point. The public printer estimates that it will cost $3,426 to print the number of copies of the reports for the years 1880, 1881, and 1882, called for in the resolution.

Your committee is of the opinion that every effort to improve the sanitary condition of the people should be fostered.

In view, therefore, of the importance of these reports in the addition which they make to our knowledge of sanitary subjects, we recommend the adoption of the resolution.

A. HERR SMITH.

The joint resolution was read, as follows:

Resolved by the Senate and House of Representatives, etc., That the public printer be, and he is hereby authorized to print and bind for use of the National Board of Health 1,000 copies of each of its annual reports, beginning with the year 1880.

MEDICAL AND SURGICAL HISTORY.—July 3.—Mr. Scales from the Committee on Printing introduced the resolution which passed: That the public printer is hereby authorized to print and bind in the usual style 5,000 additional copies of the Medical and Surgical History of the War of the Rebellion, all of which are to be sold to applicants at cost with 10 per cent. added. Provided that not more than one copy of each volume shall be sold to any one person.

MENOXENIA.

EDITOR JOURNAL:

The case of menoxenial anarrhœa recently mentioned in the JOURNAL calls to mind a somewhat similar instance in Pennsylvania, now of some eight years' standing, where the horæal profluvium was effected by exspuition instead of by the usual mode. If the source of the catamenial issue was bronchial, it seemed to be very low, and at, or near the pulmonary confluence; evidently the flow was not from the epigastrium. Permanent acyesis ensued, but general health of subject remained good.

Respecting appliances described for better treatment of hepatic ecpyesis, it would seem that by the invagination of the drainage-tube within an auliscus

already internally smeared with pus, some of the latter must adhere to the external surface of the drainage-tube, and be subject of (possible) injury by absorption.

The comments of the JOURNAL relative to proposed congressional aid for the permanent abatement of yellow fever are clearly well taken and particularly apropos. If in addition to the appropriation as suggested, some private individual like Vanderbilt would in the fullness of his heart (and purse) seek to immortalize himself by an offer of say one million dollars for fruition, pursuit would be stimulated and success seem more hopeful. After all, however, may not that pyretic scourge be master by aid of heat, filth, and overcrowding? "Frost kills yellow fever," it has been said; but frost will not come at the bidding where the fever may be worst. Let the best, however, be hoped for; man is becoming better and better able to grapple with mighty problems which concern the welfare of mankind.

SPHEX.

Chicago, June, 1884.

REPORT OF A CASE OF FLOATING CARTILAGE IN THE KNEE JOINT.

MECHANICSVILLE, IOWA, June 30, 1884.

M. F. L., 19 years of age, consulted me last September (15) for some "knee joint trouble," giving a history of a fall some six months previous, with injury to the knee, which gave but little trouble at the time. Some three months after the accident, he was suddenly taken with pain and loss of motion, suffering several weeks before relieved. This occurred some three times before he came to consult me. The diagnosis was easily made, as the cartilage could be felt.

I decided to operate for its removal. Æther; antiseptic precautions except spray. Apply bloodless bandage, pressing the cartilage far up the external border of the tendon quadriceps, and securing it in position by very elastic fine rubber tubing. Flexing the knee, I made a valvular incision down upon the upper border of the cartilage.

Opening the sac, the cartilage passed out into the incision and was removed. After all bleeding ceased, sewed up the wound, and dressed it by placing over knee a large sponge wrung out of a carbolic acid solution, and keeping it wet. Placed leg in a well-fitting splint, applying ice to keep the parts at a low temperature.

Dressed the wound in 72 hours. Found wound healed by first intention. No swelling or tenderness about wound or joint. Three days later patient returned home, some 150 miles distant.

That which I wish particularly to call the attention of the profession to, is the use of the rubber bandage to fix the cartilage, and also as a means of excluding all air or blood from the sac.

Immediately upon the escape of the cartilage, the sac receded under the tubing, and it would seem impossible for the air, blood, or contaminating germs to enter. In thus handling these cases, I believe at least one of the great sources of danger can be avoided.

Yours respectfully,

J. K. MILBOURNE, M.D.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING JULY 19, 1884.

Medical Director A. L. Gihon, ordered as member of Board of Inspection.

P. A. Surgeon R. C. Persons, ordered to U. S. S. "Saratoga."

P. A. Surgeon C. A. Seigfried, detached from U. S. S. "Saratoga," ordered to Naval Hospital, Brooklyn.

Assistant-Surgeon J. S. Sayre, ordered to U. S. S. "Independence."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM JULY 12, 1884, TO JULY 18, 1884.

Clements, B. A., Major and Surgeon, also directed to relieve Surgeon J. P. Wright of his duties as Acting Medical Director, Dept. of the Missouri. (Par. 1, S. O. 138, Hdqrs. Dept. of Mo., July 8, 1884.)

McElderry, Henry, Captain and Assistant-Surgeon, from Dept. of the Platte to Dept. of the East. (Par. 12, S. O. 165, A. G. O., July 16, 1884.)

Ewen, Clarence, Captain and Assistant-Surgeon, assigned to duty as Post Surgeon, Fort Sidney, Neb. (Par 8, S. O. 58, Hdqrs. Dept. of Platte, July 11, 1884.)

Elbrey, F. W., Captain and Assistant-Surgeon, leave of absence still further extended 6 months on surgeon's certificate of disability. (Par. 6, S. O. 161, A. G. O., July 12, 1884.)

Wakeman, Wm. J., First Lieutenant and Assistant-Surgeon, relieved from duty at Fort D. A. Russell, Wyo., and assigned to duty as Post Surgeon, Fort Washakie, relieving Assistant-Surgeon Norton Strong. (Par. 9, S. O. 58, Hdqrs. Dept. of Platte, July 11, 1884.)

Appointment—Charles B. Ewing, to be Assistant-Surgeon with the rank of First Lieutenant, July 5, 1884, vice Middleton, promoted. (Memo., A. G. O., July 14, 1884.)

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ORIGINAL ARTICLES.

ON THE DIAGNOSIS OF TUMORS OF THE ANTERIOR MEDIASTINUM.

BY JAMES C. WILSON, M.D., PHILADELPHIA. LECTURER ON PHYSICAL DIAGNOSIS AT THE JEFFERSON MEDICAL COLLEGE, ETC., ETC.,

Read in the Section on Practice of Medicine and Materia Medica, of Am. Med. Association, May, 1884.

It would be difficult to find in the adult human body a region of less intrinsic interest than that space between spaces known to the anatomists as the Anterior Mediastinum. It is narrow and of little depth; at its superior part a small interval is left between the two layers of pleura which bound it; behind the second piece of the sternum, the pleuræ of opposite sides come into contact and it amounts merely to a thin septum; while lower down it is inclined to the left, and widened out into an angular space of some breadth by the recedence of the margin of the left pleura from the sternum (Quain). It is bounded in front by the triangularis sterni muscle, behind by the pericardium, laterally by the reflected borders of the costal pleuræ, and constitutes a sort of physiological no-man's-land, for it is occupied simply by connective tissue save in its upper part where lies, when it still persists, the shrivelled remnant of the thymus gland.

Six or seven small lymphatic glands lie along the course of the internal mammary vessels. They are for the most part beyond the borders of the mediastinal space, but have nevertheless received the name of anterior mediastinal glands. Nor does this space possess, under ordinary circumstances, the clinical importance that has been ascribed to it "as indicating the position of the anterior margins of the lungs relatively to the heart," [1]for it is only upon the fullest inspiration that the pulmonary and parietal pleuræ can come into contact at the mediastinal borders, and the relations of the margins of the lungs to the heart must be determined in the living subject by the methods of physical diagnosis rather than by fixed anatomical lines.

But when we consider the Anterior Mediastinum in connection with the pathological processes to which it is liable and in connection with the new growths which occasionally invade it from surrounding structures, it assumes a clinical importance which is not likely to be over-estimated. On the contrary, systematic writers upon diseases of the chest have too often failed to recognize alike the variety and frequency of the diseases of this region and their importance from a clinical point of view. The students' manuals of Physical Diagnosis, with few exceptions (Gee, Bruen, West,) strangely do not mention them at all. The more pretentious treatises upon Diagnosis and Practice in common use in this country and abroad, for the most part, make the same omission. Important articles have appeared in recent years in the great systems of medicine [1] but much that is valuable is scattered in the journals and reports of societies, and is inaccessible to the majority.

Even those who have most freely contributed to our knowledge of the subject make no formal distinction between the diseases of the anterior and those of the posterior mediastinum. Such a distinction is, I hold, called for by the anatomy of the chest, by the great difference in the contents and relations of these spaces in front of and behind the heart and separated by the middle mediastinum containing the pericardium and its contents, by the different pathological processes to which their contents are respectively liable, by the requirements of accurate diagnosis and finally, by the measures of relief which in certain rare cases become available when, and only when, a differential diagnosis is established.

The morbid conditions to which the anterior mediastinum is liable arrange themselves into two groups; (A) inflammation of the tissues in the cavity, and (B) new growths involving the space and its borders, and are in brief:

A. Purulent Inflammation; *B*. 1. Cysts; 2. Lipoma; 3. Fibroma; 4. Osteoma; 5. Tubercle; 6. Gumma; 7. Lymphoma; 8. Sarcoma; 9. Carcinoma.

Simple acute inflammation of this region terminating in resolution is practically unrecognizable and unknown.

Of inflammation resulting in the formation of solid exudation, a single case is reported, that of Wildemann. The affection resulted from long continued pressure in the sternal region. The anterior mediastinal space was distended with layers of solid exudation.

On the other hand, abscesses are not uncommon. They may be (a) the result of primary inflammation in consequence of injury and sudden exposure to cold, or (b) secondary purulent collections in con-

[1]Quain's Anatomy, Seventh English Edition, p. 229.

[1]See Hertz in Ziemann's Encyclopædia, Vol. V.—R. Douglass Powell in Reynold's System of Medicine, Vol. V.—J. Risdon Bennett, in Quain's Dictionary of Medicine.

nection with operations upon the neck, as tracheotomy, or they may be (c) the result of pyæmia.

Cysts in this region are rare. They are mostly of embryonic origin (dermoid) and contain epithelial structures, such as hair, sebaceous and sweat glands, teeth, and occasionally bone, cartilage and other tissues, together with much sebaceous matter. These cysts occasionally develop rapidly and may attain great size.

Lipomata occur as the result of an undue increase of the mediastinal fat, and are associated with excessive accumulation of fat in the pericardium and elsewhere. Such fatty tumors are rare and of very gradual development.

Fibromata and osteomata occur so infrequently that they may be regarded rather as pathological curiosities than as matters of clinical importance. Exostoses springing from the internal surface of the sternum have been met with. They do not attain such size as would permit their recognition during life.

Tubercular deposits in the anterior mediastinal glands are of much less common occurrence than in the bronchial glands. Occasionally observed after death, they do not during the patient's life-time give rise to changes that render a diagnosis of their true nature possible.

Gummata seated upon the anterior and posterior surfaces of the sternum are mentioned by systematic writers upon syphilis.

Lymphoma, sarcoma, and carcinoma constitute by far the greater number of new growths found in the anterior mediastinum. Conclusions as to the relative frequency of these three forms of morbid growth must be based upon the observations of recent years; many of the older cases regarded as forms of cancer being doubtless lymphomata and sarcomata.

Carcinoma probably never occurs as a primary disease of this region. It is met with here even as a secondary growth very seldom, except when it occurs as a secondary deposit from a cancerous breast.

Primary sarcoma is also relatively uncommon. It may originate from a persistent thymus, from the fibrous pericardium, from the periosteum of the sternum, or from the mediastinal connective tissue. Much more commonly sarcomata of this region are secondary to some similar or associated new-growth elsewhere. In a case of my own the primary disease had its seat in the thyroid body.

Lymphoma or lymphadenoma is by far the most frequent form of growth having its origin in the anterior mediastinum.[1] It arises either in the mediastinal glands or in the thymus, and rapidly invades the surrounding tissues, the neighboring glands, the lungs, the heart, and the walls of the vessels which it may even penetrate.

So rapidly and so completely do the malignant growths of this region implicate the surrounding structures that it is, as a rule, quite impossible to determine even after death the starting point of the disease.

[1] R. D. Powell, M.D., F.R.C.P. Loc. cit., p. 5.

The foregoing morbid conditions differ among themselves as to causation, rapidity of development, associated lesions and other important clinical characters; they possess the common traits that they constitute sub-sternal tumors, and that they cannot be recognized as such until they attain sufficient volume to exert pressure upon surrounding organs and modify the physical signs in the region of the chest. It follows that in their incipiency diagnosis is impossible. Even when they have attained a considerable size and occasion serious symptoms and coarse modification of the physical signs, their differential diagnosis from analogous conditions of the posterior mediastinal space constitutes one of the most difficult problems of clinical medicine, whilst under certain circumstances their diagnosis from aortic aneurism and pericardial effusion calls for the exercise of the utmost care. Finally, the recognition of the special form of disease with which we have to d› is possible only in a small proportion of the cases, and the diagnosis must, in most instances, be of necessity a probable rather than a positive one.

Prominent among the symptoms of mediastinal tumor are, pain, pleuritic in character, commonly superficial, and differing in this respect from the deep-seated, boring pains of aneurism; dyspnœa, increasing day by day and always aggravated by exertion; cough, unproductive or attended by scanty, often frothy expectoration; dysphagia, and a sense of constriction and of oppression in the sternal region. These symptoms, which also occur in other conditions, are characterized by a tendency to paroxysmal intensification altogether peculiar and of itself of diagnostic moment.

Fever is absent, save when it occurs in consequence of some inflammatory complication.

The nutrition is often good, emaciation being present chiefly in those cases in which the œsophagus is pressed upon or implicated. Patients are often well nourished to the last.

When to such symptoms are added certain of the following physical signs, the probability of the existence of mediastinal tumor is correspondingly increased.

Upon Inspection.—Repletion of the veins of the face and neck, lividity of the lips, prominence of the eyeballs, inequality of the pupils, and tumefaction of the tissues of the face, neck, or upper extremities, from serous infiltration; distension of the superficial venous twigs of the upper part of the chest; this often amounts to a mere reddish-blue arborescence, terminating abruptly at or near the sternal borders, but occasionally the superficial veins are enormously enlarged, and form varicose patches of considerable size and prominence; protrusion of the upper sternal region and enlargement of the chest, particularly above the level of the fourth rib, usually asymmetrical; in certain cases an irregular mammilated appearance of the surface, from the protrusion of the tumor through the tissues forming the chest wall; enlargement of the thyroid body, or of the glands at the root of the neck, or in the axillæ, or deformity due to the extension of the tumor upward beyond the sternal notch or the sterno-clavicular articulations;

diminished respiratory movements, often asymmetrical.

On Palpation.—The signs of displacement of the apex of the heart, or great enfeeblement of the cardiac impulse, which often is fluttering and irregular; absence of abnormal impulse or thrill.

On Percussion.—Modification of the sternal resonance, with an area of dullness of greater or less extent, involving the upper sternal region, and continuous with the cardiac dullness; dullness in the interscapular region. If there be extensive secondary implication of one or both lungs, the pulmonary resonance will be modified at points distant from the sternum, and collapse of a lung from occlusion of a bronchus, or pleural effusion will yield their known signs.

On Auscultation.—The modifications of the signs relating both to the heart and lungs are of the most varied and diverse character. The sounds of the heart are usually enfeebled, and their rhythm disturbed. In some instances the heart-sounds have been intensified over regions of extra-præcardial dullness. Murmurs may or may not be present, but they never occupy the position, nor do they manifest either the intensity or the rasping character of those of aneurismal origin.

The respiratory murmur is greatly diminished in intensity over the tumor. Stridor is less common than in aneurism, partly because the pressure is apt to be less directly exerted upon the trachea or bronchi, and partly because the common forms of mediastinal growth tend rather to invade than to merely compress at a single point the tubular strictures with which they come into relation. Great enfeeblement of the respiratory murmur over one side may, in the absence of other cause, be of diagnostic value as indicating obstruction of a primary bronchus.

The general diagnosis of mediastinal tumor having been made, the following considerations would favor the probability of its being in the anterior mediastinal space:

(a) Enlargement of the superficial veins of the chest, especially of those below the level of the upper segment of the sternum.

(b) Bulging of the middle portion of the sternum, especially if resonance in the interscapular region remains unimpaired.

(c) Great obscurity of heart-sounds and impulse.

(d) An amount of dysphagia, slight in proportion to the other symptoms of pressure, or the absence of dysphagia altogether.

The differential diagnosis from aneurism of the aorta would be rendered probable if, in addition to the above data, there be

(a) The history or presence of tumors of a malignant nature elsewhere.

(b) An extensive area of dullness without characteristic pulsation, thrill or bruit.

(c) No evidence of disease of the blood-vessels.

(d) No history of excessive or long continued strain, nor of syphilis.

(e) Pain of a stitch-like character, with sense of constriction, rather than the dull, deep-seated, often radiating pains of aneurism.

(f) And the tumor be developed at a relatively early period of life (before the thirtieth year.)

Blood spitting may occur in consequence of the disturbing presence of any form of tumor, or it may be due to the invasion of a bronchus by a malignant growth. It cannot therefore be regarded as of peculiar diagnostic importance.

Tumors of the anterior mediastinum may be distinguished from pericardial effusion by

(a) The irregular outline of the dullness, the greater transverse diameter of which is at a higher level than that of effusion.

(b) Absence of febrile movement.

(c) Absence of the history of the acute or chronic diseases to which pericarditis is commonly secondary (nephritis, rheumatism, etc.)

(d) The progress of the case.

(e) The absence of diverse and irregularly grouped pressure-signs.

The diagnosis of particular forms of tumor of the anterior mediastinum has hitherto led to practical results, only in so far as regards the presence or absence of a sub-sternal abscess or of a cyst amenable to operative measures. Nevertheless Heyfelder[1] had collected in 1863, no less than nineteen cases of resection of the whole or part of the sternum for cancer, abscess and other cause, of which number a single case only succumbed to the operation. In recent years the successful total excision of the sternum for sarcoma, by Koenig,[2] and successful partial resections of this bone for mediastinal growths[3] lend fresh importance to the subject of the diagnosis of these morbid conditions at the earliest possible period of their development.

Mediastinal abscess occupying the anterior space, yields, before its contents have found vent, the following points of difference from other forms of tumor in this locality:

(a) Etiologically, the history of a blow, knock or prolonged pressure upon the sternum; of a wound or stab; of caries or fracture; of an operation in the neighborhood or in the throat or neck; of suppurative disease elsewhere in the thorax, as abscess of the lung or empyema; of severe constitutional disease, or finally, of exposure to intense cold.

(b) Deep-seated, steady, gradually increasing, rather than paroxysmal pain.

(c) The intermittent signs and active movement of irritative fever.

(d) A tendency to "point" and the appearances of a fluctuating, circumscribed, superficial tumor at the sternal border or at some distant position.

In favor of a cyst the following;

(a) Absence of the etiological data of abscess.

(b) Absence of fever.

(c) Evenness of contour.

(d) Absence of positive signs of new-growth, or associated morbid conditions.

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[1] O. Heyfelder, Traite des Résections, Traduit de L'Allemand avec additions et notes par Le Dr. Boekel, Strasburg et Paris, 1863.

[2] *Centralblatt f. Chir.*, No. 42, 1882.

[3] Küster, *Berliner Klinische Wochenschrift*, No. 20, 1883. pp. 127, 136, 274.

(e) Want of the diversity in the pressure-symptoms met with in the malignant growths.

(f) An obscure sense of fluctuation.

The recognition of a mediastinal fatty tumor would be attended with difficulty, enhanced by the fact that sarcoma of this region may attain considerable size and lead to a fatal issue, without grave impairment of the general nutrition of the body. A woman, aged 60 years, short of stature and enormously fat, died in my ward at the Jefferson Hospital, of sarcoma of the anterior mediastinum, the symptoms of which had lasted almost eighteen months. Kronlein[1] described a congenital lipoma of the anterior mediastinum, in a child aged one year, which found its way through an intercostal space to the surface of the chest, and then rapidly increased in size.

When we come to consider the differentiation of the malignant new-growths which constitute the more common tumors of this region, we find that a probable diagnosis of lymphoma is warranted

(a) When the tumor is primary.

(b) When there are evidences of widespread disease of the lymphatic glands, with or without enlargement of the spleen.

(c) The younger the subject, the greater the probability that the tumor is lymphomatous.

Carcinoma is rendered probable by

(a) The previous or coincident occurrence of cancerous disease in the mammæ or elsewhere:

(b) The presence of hard, nodular, immovable masses in the neck:

(c) Relatively slow development of the tumor:

(d) A tendency to rapid emaciation in the absence of evidences of direct pressure upon the œsophagus.

(e) The occurrence of cachexia.

(f) The intensity and knife-like character of the pain:

(g) A relatively advanced period of life.

(h) A hereditary predisposition to carcinomatous disease.

If the evidence in favor of the other forms be wanting, the diagnosis of sarcoma may be reached by exclusion. This view would be rendered more probable by

(a) Rapidity of growth;

(b) The history of the amputation of a limb, resection of a joint, or extirpation of any organ for sarcomatous disease.

All these forms of malignant growth are alike liable to be followed by secondary invasion of the lung.

I have purposely omitted, in the foregoing paper, the consideration of many of the multifarious phenomena of pressure and invasion met with in mediastinal tumors. The necessity to be brief has obliged me to simplify the subject by serious omissions. I find a further excuse, also, in the fact that each case must be worked out not so much by fixed rules of procedure, as by careful and painstaking analysis of its symptoms.

[1] Langenbeck, Klinic, p. 157.

LIMITATIONS OF PATHOGNOMONIC SIGNS AND SYMPTOMS.

BY EDWARD G. JANEWAY, M.D., NEW YORK.

Read in the Section on Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

It has been the writer's intention to bring into this short paper, the results of observations extending over some time concerning certain limitations which must be placed upon signs which are considered, when present in certain states, more or less pathognomonic of a definite morbid condition. The word pathognomonic is not used in a strict sense, but somewhat as the word diagnostic. The writer has so frequently witnessed erroneous opinions as to the nature of disease, arising from the reception of some one sign as absolutely determining, that he has been impelled to write this article to impress more forcibly the necessity of studying all the phenomena present in cases of disease. Those diagnoses which are rightly denominated snap, may at times be brilliant, but he who indulges in them frequently, no matter how well informed, will be sure to make mistakes. Diseases do not follow an absolute rule in their manifestations, and he who would have them always square with the written description will obtain but a partial insight into their nature. As the time allotted is brief, I shall only allude to some of the facts of the nature indicated by the title, and not attempt to cover the whole field of medicine. Moreover, I shall restrict it to this consideration as regards signs.

The nervous system allows of fewer claims of pathognomonic signs or symptoms than do most of the other organs. Yet we find that there is a tendency to accept certain states as proving the existence of a given disease. It was not so long since that many were willing to accept the presence of optic neuritis or choped disc conjoined with headache as characteristic of a cerebral tumor; and the change in intelligent medical opinion on this subject shows how the ground shifts with an increasing attention paid to a subject. At present we would accept the optic neuritis as indication of increased intracranial pressure only, not necessarily that this pressure was due to a tumor; moreover we should place the limitation to this consideration by excluding the possibility of Bright's disease, or of this as capable of explaining all the phenomena of a given case. The writer has on a number of occasions found that those who were thoroughly conversant with the examination of the eye, would alter the opinion expressed as to the cause of an optic neuritis as between disease of the kidney, and intra-cranial pressure with the course of the case and the development of symptoms.

Such a symptom or sign can only be accepted with considerable limitation as pathognomonic.

There seems to be a wide discrepancy in this matter, also, as regards the examination of the fundus of the eye, in cases of so-called congestion of the brain. Some have relied upon a certain state of the retinal vessels as proving that the brain was also congested. Yet here, surely, the margin must be very large, for

the writer has met instances in which patients, who, having the same symptoms during their whole course of medical pilgrimage in New York, and at times abroad, also, have been told that they had congestion by some, anæmia by others. Nor would this be alluded to, in this connection, were it not that some have put forth such extravagant statements upon the certainty of distinguishing in this way these opposed states of the cerebral circulation. Volitional tremor is relied upon, also, as discriminative of multiple sclerosis, yet here we have to consider the possibility of metallic poison, especially mercury, or the effects of alcohol, before accepting the tremor as due to this lesion.

Perhaps the most difficult matter which comes to a physician for solution is coma, and if in this state we could meet with some sign of absolute distinction, we might be delivered from much of the uncertainty of diagnosis. There are those who hold that in this state the temperature of the body will furnish a clue as between uræmia and hæmorrhage; but, unfortunately, some claim an elevated temperature, others a normal, as proper to the former condition. The truth is that we find the temperature too variable to become a guide, though a lowering at the outset, with subsequent elevation, points very certainly, if not with absolute positiveness, to hæmorrhage as the cause of the unconscious state. But we meet here a very decided limitation, in that we so often fail to obtain a knowledge of the initial lowering of temperature.

Others have proposed and would rely upon the presence of albumen and casts, one or both, as distinctive between uræmia and hæmorrhage. Alas! only too frequently disease of the kidney co-exists with cerebral hæmorrhage, so that the presence of albumen and casts are not infrequent accompaniments of the latter of these states, and do not help us in deciding as to the cause of the coma. So, too, if we attempt to find some sign which will distinguish between the different causes productive of hemiplegia, it will soon become apparent that there is no infallible guide. The writer has found those signs which are regarded as pathognomonic, as, for instance, between embolism and hæmorrhage, or obliterating endarteritis, liable at times to mislead, unless their application is limited with certain qualifications. For illustration, heart murmurs may exist, and yet, instead of cerebral embolism, hæmorrhage may be the cause of a hemiplegic attack. The reverse is, also, not infrequently true; a heart murmur is absent, and yet cerebral embolism takes place, owing to the obstructing plug having been detached from a thrombus out of the way of the direct blood current, as in the auricle, etc. So, too, an obliterating endarteritis may cause a sudden attack; in such case the already narrowed lumen is probably closed by a rapidly formed coagulum, and that suddenness of onset which is often considered pathognomonic of embolism, or hæmorrhage, be simulated by obstruction. Neither does the method of recovery upon which others would depend always lead us safely through the maze of possibilities naturally inherent in these cases.

Again, rigidity of the neck through tonic spasm of the cervical muscles, is a valuable sign in cases where a fever or internal inflammation is liable to be confounded with meningitis. It is, however, in no sense pathognomonic, or, rather, admits of considerable limitation.

Beyond those cases where a slight degree of it is present in pneumonia, etc. (of childhood particularly), the writer has found it very markedly present in one case of ventricular hæmorrhage, and in one case of sub-ependymal softening of the lateral ventricle, involving, to a considerable degree, the sensory tracts in their passage toward the occipital lobes. The case was one recently under observation, having severe headache, neuro-retinitis, cerebral irritability, with increasing apathy, to which this symptom became added.

The writer, as others, has been obliged to receive tendon reflexes, or rather their plus and minus changes, with considerable limitations, as indicative of disease. He has found, as others, the normal possibilities too considerable.

Electrical reactions, though much relied on, do not absolutely discriminate the nature of a lesion nor its site; for instance if there is degeneration, reaction present, the lesion may either be situated in the nerves, the anterior nerve roots, in the anterior cornua, or be of uncertain site, as in the case of lead-poisoning. A knowledge of the history and causation is essential to a correct appreciation of a given case.

Illustrations could be given were there time.

In considering pulmonary complaints we find but few signs considered pathognomonic of themselves, but some which in connection with others are regarded as determining.

Thus vocal fremitus is often relied upon as distinguishing between pleural effusion and pneumonic consolidation, where a doubt may have existed, owing to the peculiar combination of signs present. That it has a certain value the writer is prepared to admit, but that it can in no sense be considered as positive, the following brief allusions will illustrate. The writer has met two cases of complete consolidation of the lung with obstruction of the main bronchus by an aneurism in which there was absence of vocal fremitus, etc. Again it is not a very rare event to have vocal fremitus preserved in cases of pleural effusion, nay, even to have it intensified. The writer has frequently noted mistakes made by supposing vocal fremitus preserved, because existing at the upper level of pleural effusions, when absent below. There is perhaps no greater difficulty than is presented by a case of this character in which the bronchial breathing is present to a notable degree. Even the exploratory puncture by the hypodermic syringe-needle has its limitations in these conditions, because it might be possible to have it fail of withdrawing fluid owing to obstruction, leakage, etc., or if withdrawing it, to make sure that it is not because of the existence of a combination of the two diseases. It might be added that the writer has examined some of these cases after death, and became assured that both serous effusion and empyema can, independent of a consolidation, cause increase of vocal fremitus. The limitations then in a

doubtful case become so great that the sign loses a large measure of its force. The limitations of cracked pot percussion note as distinctive of a cavity are so familiar to you all, that it would be a waste of time to repeat them. There may be some, however, who are not familiar with the want of reliance to be placed upon bronchial breathing as discriminating between pneumonia and pleurisy with effusion. It is a very common thing to have bronchial breathing present in cases of pleural effusion, and it follows a certain method and character. It is usually present at the upper limit and has a somewhat sniffling tone, and gives, as compared with the bronchial of consolidation, the idea of coming from a distance. It may, and then usually with these characters, be present over the whole effusion. At times, however, this bronchial breathing is so plain and concentrated that even the best examiners are misled by it into supposing consolidation to exist.

The writer has noticed this mistake more frequently in empyema and in the pleural effusion of inflammatory rheumatism. To make a short digression, the writer will explain one of the causes of this occurring under these circumstances. The patient is hurriedly set up, the physician percusses rapidly, noting dullness or flatness over the lower part of the chest, and then, running his ear over this portion, is struck by finding bronchial breathing, not noting that, as a rule, it is present only at the upper part of the flat or dull region. The vocal resonance is also often misleading, being broncophonic. Hence in teaching it is wiser to state that bronchial breathing is usually due to consolidation resulting from infiltration, exudation, etc., but at times also to compression of the lung. Limitations too are necessary in considering the importance of the signs considered pathognomonic of a cavity. Probably you are all aware that at times the physical signs of a cavity may exist, and yet the lung be consolidated, or compressed by fluid. The writer has been particularly impressed with this in the examination of certain cases of empyema, serous pleurisy and hydrothorax. Under these circumstances he has heard amphoric breathing, whispering, pectoriloquy, and amphoric percussion note over a space in the lower part of the inter-scapular region, and close to the lower angle of the scapula as a rule, which are extremely deceptive or liable to be so, were the observer not fore-warned by previous experiences. Some of these cases have been followed to the autopsy, others into convalescence, in both series the result showed that these characteristics were simulative of a cavity, not evidences of its existence. No very good explanation could be offered for this deviation from the general rule so far as the writer has been able to study it in the cases which have come under observation. The writer would only draw attention to one point in speaking of the limitation of vocal resonance, because these follow the corresponding breathing states to which allusion has been made, and that is to mention the existence of a normal pectoriloquy of which he has assured himself in a number of cases. His attention was first drawn to it by finding that when describing vocal resonance as heard over normal lung in the usual terms, and then presenting some one as an example, that the description, and the illustration would not match, but instead, that articulate speech was distinctly audible over the chest.

The pathognomonic importance of râles as indicative of fluids in bronchial tubes or of changes in their calibre, or in the case of the crepitant, of separation of the sticky sides of the air cells and small bronchioles is but little called in question. Yet there are those who believe that pleural conditions cause certain of these phenomena. The writer has met a few cases where a crepitant râle was present in the initiation of a pleurisy. Hence, beyond the usual limitation of this râle, he would add this as of rare occurrence in his experience. Under such circumstances he supposes that the separation of the sticky pleural surfaces so takes place as to produce crepitation instead of grazing or rubbing. There are few cases which would support the view that the subcrepitant râle is of pleural origin; pleural exudation may be met with in some cases where subcrepitation existed during life, but the writer has seen numerous cases in which subcrepitant râles were present during life, and no exudation was present on the pleura post mortem.

Another sign regarded as pathognomonic is the succussion sounds. There can be no question of its origin from the shaking of air and fluid in a hollow space. The writer has, however, obtained it in several other conditions than hydro-pneumothorax, notably so in cases when from catarrhal or other trouble fermentation occurred in the stomach. He has, however, met with but one instance in which such succussion had led to a mistake in diagnosis. In that instance pneumonia existed, and the physician in attendance was led to shake the patient by hearing a metallic bubbling, and observing the splashing sounds came to an erroneous conclusion. The stomach succussion requires the use of a little more force and is not in all instances readily audible over the chest though heard at a distance. The limitation which it would be safer to place in teaching this sound would be that it might arise from other spaces containing air and fluid, as the stomach. It might be added, that the writer has obtained it in a fibrocystic tumor of the uterus whose walls were gangrenous, in an ovarian sac having a communication with the exterior, and in the intestines largely distended; and that though he has attempted to produce it the case of large cavities in the lung he has hitherto not succeeded.

In the study of diseases of the heart, several important limitations are to be placed upon murmurs as pathognomonic. Not infrequently the writer has met persons with weak heart from myocarditis, degeneration, etc., who had been informed, presumably by competent authority, that they had no disease, because of the absence of murmurs, and of evidence of marked enlargement of the heart. And on the other hand, it is supposed that because a murmur is heard over the heart, or in such a position as is natural to valvular disease to occasion it, that said murmur is due to valvular disease. You are all aware of anæmia, and of respiration, as at times the cause of mis-

takes. The writer would draw attention more particularly to the possibility of aneurism, or of arterial degeneration with dilatation causing a murmur in the aorta above the valves, or behind the heart, and transmitted through it so as to simulate aortic or mitral valvular disease. Notwithstanding one is aware of the likelihood of encountering cases of this nature, or that one under consideration may be of this nature, it will be found at times, examining as carefully as possible, extremely difficult to reach a certain decision between such conditions. At least, it has fallen under the writer's observation that such mistakes were made by practiced auscultators, and he has himself been extremely puzzled by some cases of this nature, and come to a right conclusion only after several examinations; and in two which he met some years since, decided upon the wrong condition. One instance in particular impressed him, because of the small amount of trouble. This consisted of a thrombus about ½ inch long, situated on the aorta, about an inch above the valves, taking its origin from an ulcerated atheromatous patch. The ante-mortem diagnosis by a clever physician was aortic valvular disease, obstructive and regurgitant; thus showing that the pre-diastolic aortic murmur caused by the recoil of blood on the valves, or rather, the arterial systolic, may be mistaken for aortic regurgitation. If a digression be allowed for a moment, it may be in order to point out the necessity of keeping in mind, in such cases, that a murmur just before, and, as with the second sound, above the valves, whilst there is no murmur at such time or during ventricular diastole, should raise a suspicion, at least, that the murmur is produced in the aorta, and not at the valves. Such a consideration has been of great service to the writer in establishing the proper site of murmurs.

Another sign which the writer has heard laid down as diagnostic as between an aneurism or a tumor pressing on an artery or in the neighborhood of an artery, is the presence of a double arterial murmur, this being regarded by some as positive evidence of an aneurism. The writer has paid careful attention to this matter, and has found it fail so often that he regards the proposition as utterly untenable. He has had particular occasion to study it in the epigastric region. In four cases of carcinoma of the stomach or lympho-sarcoma in this region, he has found a double murmur present over this area, and in some of these cases, with no pressure exerted by the examiner. The new growth, as the autopsy showed, pressed on the aorta, and at the stenosed portion not only did a murmur occur during cardiac, but also during arterial systole. It should be added, that marked epigastric pulsation was present in all. In a recent case, the writer found such a double murmur due to a partial stenosis of the aorta by connective tissue going over it. The patient had radiating pains from the spine into the anterior crural and lumbar nerves, évincing pressure on these, considerable epigastric pulsation, to which was added this double murmur, particularly audible when the heart was acting strongly. Another limitation is also necessary in the consideration of double arterial murmur, which has likewise been the cause of difficulty to a number of physicians. This consists in the presence of venous puss in the chest and neighborhood of the aorta. In this latter place it is more deceptive than when found in the neck, though even in that situation, especially in men, the writer has found it mistaken for an aneurismal murmur.

A sign which any physician on first impression would be liable to misinterpret is the severe dyspnœa which at times accompanies Bright's disease. Should one encounter a patient with severe subjective and objective dyspnœa, having at the same time a considerable degree of cyanosis, he would be liable, nay almost certain, to say that such patient had some difficulty with the lungs or air passages primarily or secondary to cardiac trouble. Yet in such condition, independent of the effect of externally received poison, we meet an important limitation, one which is not sufficiently familiar to many physicians. This constitutes the dyspnœa of Bright's disease, or, as some say, the nervous dyspnœa of Bright's disease, asthma of Bright's disease. The writer has met a number of such cases. There is no demonstrable action of the heart; no obstruction in the bronchi; the respiratory murmur is perfect, without the least râle, and yet the patient feels in himself and seems to others in danger of dying of suffocation. In fact, when severe dyspnœa exists, for which the condition of the heart and lungs offer no explanation, this Bright's dyspnœa should be suspected, and the urine examined for evidences of the disease. The writer would be willing to admit that some cases can be plausibly explained upon the nervous theory, but this explanation will not satisfy the conditions when cyanosis exists. How the nervous system could induce this is a mystery to the writer, considering that the patient may be inspiring and expiring forcibly, and the heart is throwing the blood through the lungs and body (at least there is no proof to the contrary).

The idea which he formed when examining a marked case of this kind, was that by some chemical or other change the red blood globules did not absorb oxygen. All cases in which œdema, hydrothorax, etc., exist, are excluded from this category.

The writer will close the paper by drawing attention to two signs upon which it is necessary to place certain limitations. The first is the presence of albumen in the urine. That this may occur from other causes than Bright's disease is probably familiar to all, and that it can be formed in the urine of apparently healthy individuals has been emphasized of late by several observers. The writer knows of no better illustration than one he met a year ago. The patient, a male, broker, had had severe headaches, and on one occasion, for a time, glycosuria. He had had his urine examined in consequence repeatedly, but albumen had not been detected. Coming to the writer's office one morning in consequence of the headache, he was, as is the custom, asked for a sample of urine. This was found loaded with albumen. The morning and evening urine were requested, but these showed no evidence. A series of experiments were made by the patient, some of which are of sufficient interest to detail. The morning urine would be free, but a cool

sponge bath, reading a book or mental exercise, would instantly cause a marked albumenuria. At no time during six weeks' observation could the writer detect casts, or prove that the kidneys were otherwise affected than to allow from different causes albumen to transude. A re-examination after a lapse of six months showed the same condition.

So also casts, especially the hyaline, may be present in the urine for a long time without thereby proving a serious lesion of the kidneys. It is possible that casts may, under certain conditions, form in normal kidneys.

The writer has recently had occasion to examine the urine of a gentleman who has a considerable number of casts, hyaline or slightly granular, coming only after severe exercise. The urine is normal in quantity, specific gravity, and has not contained albumen. The writer has examined the urine passed at other times of the same day on several occasions with negative results, except the presence of mucus and occasionally mucous casts. Only too frequently we are apt to alarm a patient by the detection of what may be considered a sign of imperfect action, yet not necessarily of confirmed or incurable disease, and to pronounce them afflicted with a malady whose very name is a terror.

These illustrations and remarks will suffice for the end had in view, though the same line of consideration could be continued indefinitely.

THE USE OF ANTISEPTICS IN PUERPERAL CASES.

BY MADISON REECE, M.D., OF ABINGDON, ILL.

[Read before the Military Tract Medical Association.]

During one of the hottest days of the month of July, 1881, I was called to see Mrs. W., near London Mills, in consultation with Dr. Wilson, of that place. I found her in a small bed-room, only large enough for the bed upon which she was lying, with but one window in the room. She had been confined a week previously. Her pulse was 160, her temperature 106°, the tongue dry, abdomen distended to the size of a woman at full term, the secretion of milk suppressed. She was delirious, and an odor filled the room like that of a body far gone in putrefaction.

The husband was informed that there was no probability whatever for the recovery of his wife, every symptom indicating a speedy dissolution. However, I suggested a thorough washing out of the uterus with antiseptics. A half gallon of warm water with two drachms permanganate of potash was prepared. After being placed in a proper position across the bed, a gum catheter of the largest size, with several fenestræ in the lower end, was passed up into the uterus as far as it would go. A common Davidson syringe was attached to it by means of a piece of rubber tubing. The uterus was thoroughly washed out, the injection being continued until the water returning was perfectly free from all odor and clear in color. The discharge from the uterus was of such a peculiarly strong odor, that it was impossible to free the hands from it. It was like that one acquires in the dissection of bodies.

Such a change as took place in this woman's case within an hour, I never before saw in any case. Immediately after this cleansing process the delirium passed off, the temperature fell, the pulse came down—in short, the effect was simply magical. She was given twenty grain doses of the sulphite of soda. The husband was taught how to administer the injections, which were to be given every three hours—one of a solution of permanganate of potash, the other of carbolized water, alternately. The patient made a speedy recovery from the severest attack of puerperal septicæmia I have ever seen.

Twelve years before this case, in September, 1869, I was called to see a woman who had had an abortion produced by mechanical means. She had a rapid pulse, high fever, hot skin, unquenchable thirst, irregular chills, an icteric countenance, and a sanious discharge from the uterus that smelled horribly.

A half dozen intra-uterine injections of carbolized water thoroughly administered, rescued her from impending death.

Ever since that time I have used this method in all such cases with similar results with a few exceptions. They are to be regarded as similar to surgical fever, the result of decomposing *débris* in the uterus, which is absorbed from the uterine surface, and which Sir James Simpson has aptly compared to the flap of an amputated thigh, with its raw and bleeding surfaces, and patulous vessels ready to absorb decomposing fluids with which they may lie in contact.

The following long-continued case illustrates, in another way, the value of these intra-uterine injections. The last day of January, saw Mrs. M. A., aged 24, living near Hermon, a strong and vigorous woman. She had been confined 24 hours previously. The child was dead when delivered, and was so much decomposed that portions of the skin slipped from the body when handled. She had had a chill and profuse flooding a few hours before I saw her. The pulse was 140, the temperature 105°, skin hot, tongue dry, and abdomen tympanitic and distended to the size it was before her confinement.

The uterus was immediately washed out with carbolized water, giving great relief to the patient. The injections were kept up every three hours for a week, with the effect of reducing the temperature after every injection. Quinine was also freely administered. Thinking, perhaps, that the septic matter was sufficiently removed from the uterus, the injections were discontinued. Within 24 hours a severe chill, followed by a high temperature, announced the absorption of more septic material. The intra-uterine injections were again resorted to, with the same results, diminishing of temperature, and lowering of the pulse. At the end of a week, as there seemed to be so much improvement, they were once more discontinued. Again, in a short time, there was a chill and return of former symptoms. Again we returned to the use of the intra-uterine injections, and kept them up until every vestige of fever had disappeared from the case for several days.

In this case there was no bad odor from the discharges, as in the former cases, and the effect of the injections in arresting the poison of the septic matter was prompt and striking.

Should antiseptics be used in every puerperal case? I believe so, especially as antisepsis has come to be considered as the use of every means of cleanliness, and the prevention of infectious or contagious matters. And just here let me record it as my fixed belief, that thousands of women have come to their deaths, from the dirt and other matters under the finger nails of their attendants. That dirt, the nest of infectious particles scraped from the body of himself, or possibly bathed in the infectious fluids of another person, is conveyed by means of the touch to the abraded surfaces in the puerperal patient, and she becomes inoculated with the virus that causes her death. I believe that any one suffering from a chronic skin disease, or who is afflicted with a chronic ulcer of any kind, should not attend upon puerperal patients, no more than he who is attending patients with scarlatina or erysipelas. In fact it is my deliberate judgment, that puerperal women should not be attended by the general practitioner at all, and for one I will gladly welcome the day, when I can turn over all such patients to well educated and thoroughly trained lady physicians who will make that their special calling.

Begging pardon for this digression I would say in conclusion that within twenty-four hours after confinement, the use of vaginal injections of carbolized water, affords the greatest comfort to the patient, bathing and soothing the neck of the uterus where there may be abrasions or lacerations, and cleansing and purifying the parts. If the discharges become foul in odor, and there is a marked rise in the temperature, then the injections should be *intra-uterine*. One precaution should be borne in mind, in prescribing vaginal injections, and that is to have the hole in the end of the pipe or syringe closed. I have in several cases seen a severe and dangerous uterine colic, caused by the injection passing into the uterus through the patulous and open os. In the rubber syringes that are sold for female use, I often prepare the pipe for such purposes by closing the central hole in the end, and enlarging the others in such a way that a backward current is given to the injection.

IMPORTANCE OF DIAGNOSIS IN OPHTHALMOLOGY.

BY E. WILLIAMS, M.D., CINCINNATI, O.

Read in Section on Ophthalmology, Otology, etc., American Medical Association, May, 1884.

If a man were seen firing in the air expecting ducks to fall without looking if any are flying over, he would be brought to court on a quest of lunacy. Why should shotgun practice in the medical profession, similarly aimless, be less criminal evidence of a fool? Rifle practice in the healing art requires intelligence and skill. No surer proof of a quack can be asked than a prescription containing a great variety of romantic remedies. Quacks and nostrum venders can kill just as well at long range, and with a shotgun, as with an honest, scientific weapon. The honest, educated physician insists on a personal examination before risking an opinion or prescription. Diagnosis demands knowledge, to which there is no royal road.

The prime importance of intelligent diagnosis need not be argued. Narrow notions of specialties in medicine are a great professional misfortune. How often do expectant students propose to study the eye exclusively, without the labor of a regular course of study and a degree? The only antidote to this nonsense is to insist on a good preliminary education, and a thorough study of medicine, through three to five years. If *then* a specialty is chosen, the choice will be discriminating. In that way only can a foundation be laid in solid rock for a special structure.

The eye is the most exquisite part of the body, and more closely linked with the healthy flow of function in the organism than any other organ. No violinist, however gifted, can become preëminent except he begin the manual training in early years. Shall less be demanded of one who is to play upon the living harp of a thousand strings, with its mixed melody of earthly and heavenly vibrations? Light, nimble and delicate manipulations are eminently required in an oculist. These can only be achieved by handy hands, early, long, and faithfully trained.

But without intelligent diagnosis, even these accomplishments go for nothing. Thorough familiarity with optics, including mathematics, is demanded if anything but mediocrity is expected. No department of ophthalmology is of more practical importance than the anomalies of refraction and accommodation. To a thorough, clear diagnosis in these, the physician must be familiar with physiological optics. The flippant way that practitioners talk about "taking up a specialty," were it not for the tragical consequences, would be simply ludicrous.

The mercenary estimate placed by the public on the faithful army of Esculapius, is due largely to failures of diagnosis and their consequences. With few exceptions, the world don't know the difference between a decent physician and professional robbers. They call them all doctors together. The only way out of this "Slough of Despond" is for all educated, decent medical gentlemen to pool their issues against the bloody and thievish-fingered quacks of all colors and persuasions.

All honor to the American Medical Association for the lofty and only safe ground of its Code of Ethics! No one who lives up to its letter and spirit can ever fall into the dirty ways of irregulars and tradesmen in our noble profession. It is the mean, mercenary spirit that eats out all bowels of mercy and scruples of conscience in a medical man. Broad intelligence and thorough honesty are the qualifications of a true physician. I state a fact, that there are too many medical colleges in this country. It is too easy for the ignorant and unscrupulous to get into the motley ranks of our profession. According to

the *Record*, there are 14 chartered medical schools in the State of New York, graduating annually eleven or twelve hundred students. Some of these many mills must be small, and can grind out from the screenings of the others, dangerous and disgraceful doctors, who, as blacksmiths, would be safe members of society. What is true of New York applies equally to other States.

Reform of these crying evils is timidly seen in the general encouragement to lengthened terms of study, and more thorough preliminary education. But the progress is slow, and too closely watched by jealous and selfish eyes. So-called measures of reform are too often but tricks of the trade. I only speak of these evils, as they bear upon diagnosis and reputable practice, without attempting to suggest remedies. Fewer graduates, of a higher order, are what we need. No advanced step can eliminate *all* quackery, but it will leave behind much driftwood which gives force to the impression that medicine is a trade. Scientific accuracy of diagnosis, and intelligent practice, can best come through thoroughness of study, by educated young men. Correct diagnosis, so important in everything, is peculiarly demanded in ophthalmology. Recent studies of the anatomy, offices and diseases of the nervous system, have thrown a flood of light on some of the most obscure troubles of vision. Language read in the eye is often eloquent in differential diagnosis of diseases elsewhere. The oculist cannot afford to be ignorant of the influence of other diseased organs on the eye. Neither can the practitioner in medicine, surgery or obstetrics, longer get on, without serious knowledge of the settled facts and principles of ophthalmology. Broader investigations and higher knowledge come into demand, just as special studies extend the area of our territorial possessions. Territories belonging to the different branches overlap, and each must understand enough to see mutual relations and diagnostic bearings. A surgeon who cannot tell cataract from glaucoma, or strabismus from deviations following paralysis, will make unpardonable blunders. A cataract operation, where no capacity to see exists, is inexcusably stupid. Every one knows the mutual dependencies of internal pathology and many diseases of the eye. Certain general states, as syphilis, scrofula, anæmia, give rise to the most troublesome eye diseases. Depraved blood, the pabulum of all the bodily organs, is the explanation of many problems in the *ars medendi*. I need only refer to retinitis in albumenuria, diabetic cataract, intraöcular hæmorrhages, toxic amblyopia, and all sorts of specific manifestations in the eye. How often does spontaneous extravasation of blood under the conjunctiva oculi tell the skilled physician of the danger of apoplexy? This, in itself trifling symptom, in advanced years portends grave danger, and ought to be heeded. Conscience cannot be satisfied with prescribing eye water in such cases.

But what has ophthalmology to do with obstetrics? To say nothing of the immediate and remote connections of derangements of menstruation, and other uterine diseases, with serious troubles of vision, I instance pregnancy. The occurrence of albumenuria, in the period of gestation, involves the greatest danger. Puerperal convulsions, the horror of obstetricians, are imminent under such circumstances. Failure of sight from albumenuric retinitis is often the first warning. The retinal changes are so characteristic, that the diagnosis of kidney disease can often be made from them alone. The fatal effects of ophthalmia neonatorum on the eyes of infants, can be seen in all our blind asylums. Nearly half the inmates owe their condition to this disease. Let alone, or treated with old women's remedies, especially if aided by poultices, many of them will lose one or both eyes. This disease can nearly always be prevented. For twenty or more years, I have exhorted my students to wash the eyes thoroughly as soon as the infant is born. The eyes should be opened and clean tepid water made to flow through them, so as to remove all possible poison. This fatal disease is due to inoculation with the mother's secretions. If active gonorrhœa be present, or suspicious discharges, a few drops of a weak solution of nitrate of silver should follow the washing. One to two grains to the ounce is strong enough. This prompt attention will nearly always anticipate the disease. A large number of recent observations in lying-in hospitals, and in private practice, prove this beyond question. Even where the purulent disease has set in, prompt and proper treatment will save the eyes from damage.

The intimate connection of certain eye symptoms with disease of the brain and spinal cord, has long been known. The numerous books and monographs recently published on that subject are nearly all by ophthalmologists. They treat mostly of such phenomena about the eyes and vision, as help to locate the seat and nature of the lesion in the brain. These studies have led to remarkable results in cerebral physiology and pathology. A new field of vast reach has been opened to the study of cerebral localization. The wonderful results of these special inquiries are but beginning to show. A work in German, published in this year, by an oculist of Hamburg, brings together all the known clinical facts about the eye in hemiopia. He desires to show their importance in locating the seat of the brain lesion, be it in the optic tracts or in the visual centres in the cortex.

In the study of locomotor ataxia, much interest has always attached to the two most frequent manifestations in the eye, optic atrophy and extreme contraction of the pupil. The former results, usually, in total destruction of the sight. The latter, when present, persists when all perception of light is extinct. I recall one patient, totally blind for years, where the very small pupils are still the same. In such cases, even when vision is little, if at all impaired, the pupils do not respond to changes of light. But the moment the patient tries to focus for print, the pupils contract, dilating a little when accommodative tension relaxes. The small pupil, when present, indicates the cilio-spinal region of the chord as the chief seat of sclerosis.

Double optic neuritis, generally, means a serious lesion of the brain. If attended by paroxysms of severe head-ache, and sudden causeless vomiting, the

diagnosis of tumor of the brain is next to certain. The most striking symptoms of optic neuritis, are often seen where the sight is little impaired. Double optic neuritis often persists for years, before total blindness, or death, occurs. I recall a poor patient woman, whom I treated five and six years. At last she succumbed to acute pneumonia, never having become entirely blind. Other complications must be looked to in order to form a rational opinion of the seat of disease. But the diagnosis is not always certain, till explained by the autopsy. I have now under treatment a young lady of 18 years, with the most marked symptoms of double optic neuritis I ever saw. She is in fair health and at school. She has had imperfect sight since her third year, and says the defect of vision has been about the same for many years. Her father became blind at 25 and remained so till his death a few years ago. Cause of his trouble not known. The sight of the patient is 0.1 in both eyes. The mother and sister have perfect vision. She can read no 3½ at 6 inches and keep up with her classes. No glasses help her at all. The optic papillæ are enormously swollen and present a woolly appearance. The veins, large and tortuous are less obscured by the opaque tissues, than the arteries. There are no retinal hæmorrhages. The periphery of the fundus oculi is much clearer than its central portion. Our first examination was Feb. 26, 1884. At the second, four weeks later, there was no change. There was absolutely no other symptom to explain this peculiar state of things, than the facts stated. It is quite probable that blindness from optic atrophy will be the final issue.

As showing the frequent dependence of serious ailments of sight upon uterine diseases, I refer to the following: A married lady 27 years old had a large patch of central choroiditis, with corresponding scotoma, in the left eye. The atrophied portion is white, and bounded by a ring of pigment, and she can only count fingers at 8 inches. In the right eye is a more recent choroiditis, with a patch near the macula but small. The vision in this eye is 0.3. She has never menstruated or borne children, on account of the complete closure of the os uteri. Since the catamenial period, she has always suffered with cramps and swelling of the abdomen, at the regular times.

In illustration of the effect of the menopause, in predisposing to bad troubles of vision, I will cite the case of a Miss K. at 55. She is stout and healthy but not plethoric. Seven weeks ago, while reading, she suddenly lost the sight of the left eye. When first seen she could only count fingers at six feet distance.

She has extensive retinal hæmorrhages, with blood coagulæ in the vitreous, but no pain or increased tension. The right eye has a manifest hyperopia of idioptrics. With this corrected the vision is perfect.. Her age and pulse indicate some calcareous degeneration of the coats of the arteries. But without the fullness resulting from cessation of menstruation, this fatal trouble would not have occurred.

The sudden seriousness of detachment of the retina is well known. Different explanations of its pathology have been advocated, but that question is not settled. It frequently, but not always, occurs in highly myopic subjects. Now and then eyes of normal refraction are attacked. A man of healthy appearance, 37 years of age, went suddenly blind in the right eye two years ago. The left is perfectly sound and vision normal. The detachment is extensive, and below. About the time this came on, partial hemianesthesia of right side of face and scalp was discovered, and still persists. The derangement of feeling is strictly confined to the distribution of the supra-orbital branch. Lately he has suffered with severe pain in the teeth of his left side. These are the only symptoms. What effect has irritation of the fifth nerve, if any, on the etiology of detachment of the retina?

In some cases of retinitis pigmentosa, a very peculiar disease, there are seen unusual and troublesome complications, that require explanation. I recall a maiden lady with this form of retinitis. One eye was already blind. In the other the concentric narrowing of the field of vision was slowly increasing. In the right eye, already blind, there was confirmed glaucoma. She came to me with an acute attack of the same disease in the left eye. I made at once a large iridectomy, which arrested the glaucoma. Seven or eight years have since passed, and she still sees a little. Final blindness is inevitable, but the evil day was put off by the operation.

Miss B., aged 16, was first seen March 16, 1883. She then had keratitis of fifteen months in the right eye, and three months in the left. The corneæ were hazy and vascular, and the deeper media turbid. With the ophthalmoscope glimpses of the fundus were seen, indicating retinitis pigmentosa. The right eye was convergent and amblyopic. She had experienced night blindness since childhood. The vision of the left eye was 0.3. She had Hutchison's teeth, and the peculiar physiognomy of inherited syphilis. When seen again, in one year, the corneæ were nearly clear, but vision about as at first visit, being able to read ordinary print at 8 inches. There was then contraction of the field of vision, advanced atrophy of both optic nerves, and the usual deposits of pigment in the retina. By this time the media were clear, and we saw the sharply defined, characteristic patches in the choroid, of choroiditis circumscriptæ, as well as the retinal pigment. This case goes to confirm the view that the so-called retinitis may be, primarily, a disease of the choroid. What connection the specific inheritance had with the latter diseases, I do not venture to conjecture.

An only child, 3 years old, born with syphilitic eruptions on the face and body, that were long in disappearing and left scars, was lately brought for advice. The child was rickety, and long in learning to walk and talk. The father has a clear, specific history. For several months the child had been somewhat intolerant of light, but for four weeks the photophobia has been intense. Both corneæ were cloudy and partially vascular from parenchymatous keratitis. It is a case of Hutchison's syphilitic inflammation of the cornea. The diagnosis is certain, though the peg teeth are not present. The result of treatment is yet undecided.

Take the following for its hopelessness and ob-

scurity: M. A., aged 9, a delicate-looking girl, has had marked divergence of the right eye from infancy. With the left she could see well till one year ago, when it began to fail. For the last three months she has lost rapidly in sight. In the right there is absolute blindness, with extinction of perception of light. She still reads Snellen No. 8 slowly, and objects in the outer half of her field are better seen than elsewhere. There is pronounced white atrophy of the optic papillæ. No cause can be detected in the brain or spinal cord to account for it. For two years the gradual failure of sight is the only symptom. Lesion in the nerve centres, not yet revealed by other symptoms, is certainly to be inferred.

For difficult diagnosis, let us describe the case of a German woman, 38 years old, well developed and healthy. About a year since she found that the vision of her left eye was defective. Three months ago the right began to fail. For the past year she has been much troubled with giddiness.

These attacks, with tendency to stagger and fall, have occurred at different intervals, but never oftener than once in two weeks. No nausea or vomiting, but numbness confined to the hands was often felt. She has not menstruated for four years. An enlargement of the abdomen resembles pregnancy, which does not exist. Within a year she has grown very fleshy but lost strength. The vision in right eye is 0.8. With the left she counts fingers only at 6 inches. In this eye the papilla is quite blanched, but in the other it is normal, and the color sense is perfect. The field of vision is quite clear in its inner half, but dim in the outer half. In the left eye, the outer half of the field of vision is totally abolished. She now has frequent and violent attacks of headache. We ordered moderate doses of iodide of potassium, and in two months she returned, quite relieved of the pain in the head. Vision with the right eye was now perfect, or nearly so. The left could count fingers at 6 feet. But the hemianopsia remained the same, as did the ophthalmoscopic appearances. The diagnosis was atrophy of the left papilla, and hemianopsia in the outer halves of the field of vision. This means loss of perception in the *inner half* of each retina. History and symptoms all indicate a brain lesion. The seat of the difficulty is conjectured. Time, and a post mortem may determine the seat and nature of the trouble.

Every surgeon of pretensions, and all mountebanks operate for strabismus, as though the problem of cure were entirely mechanical. The influence of associated convergence and accommodation, in causing strabismus, and the certain changes produced by the progress of years, are not thought of. Immediate results may be satisfactory and remunerative. But insufficiency of the divided muscle, and subsidence of accommodation, will probably lead slowly to great and unsightly divergence, a deformity far worse than the original, and vastly more difficult to relieve. Then again careless and ignorant operators often get no effect, because of inexact diagnosis, not knowing that the case was due to paralysis. Very recently I was asked to operate for squint on a delicate married lady of 36 years. Both eyes were turned far inwards with no ability to rotate either outwards. When but three months old, sleeping in a draft between two open windows, she awoke with the eyes turned in from paralysis of both external recti. Complete paralysis, of 36 years, leads to atrophy of the inactive muscles and rigid contraction of the antagonists. She had never learned binocular vision. No hope can be entertained of restoration to a physiological condition. Hence, no satisfactory result could come from a simple tenotomy, and a tedious operation for advancement, might only result in distressing and life-long double vision. This is the more to be apprehended, as the vision in both eyes was equal and perfect. For these reasons I refused to operate.

A CASE OF EXTRA-UTERINE PREGNANCY.

BY C. N. COOPER, M.D.

Mrs. C. consulted me in October, 1882, for what she supposed to be some uterine disease. She was English by birth, 39 years old, and the mother of four children. She had suffered three miscarriages. Her youngest child was four years old. I treated her nearly three months for subinvolution previous to her last pregnancy. For the past eight months her menstrual flow had been scant, and followed by a somewhat profuse leucorrhœa. She had no flow in September, but when she consulted me, had recently ceased from her October period, and was suffering from dragging pain, lassitude, etc. I found the os flabby and patulous, readily admitting the point of the index finger. The cervical canal seemed filled with tenacious mucus. The depth of the uterine cavity including the cervix was five inches. Three times each week for the first month, and twice each week for the second month, I applied equal parts of tincture iodine and fluid extract ergot to the cervix, within and without, and occasionally carried the treatment to the fundus; also, ordered free, hot vaginal injections at bed time. After two months treatment the uterus had increased to 6½ inches in depth, and the os was still patulous, but the leucorrhœa had ceased. A tumor could readily be felt either within the wall of the uterus or attached immediately to it upon the right side. It did not seem to encroach upon the uterine cavity.

By the first of January the tumor was as large as a pregnant uterus at the beginning of the fourth month. Its position was always on the right side, and freely movable with the uterus. The patient thought she could feel motion within the tumor, yet no fœtal heartbeat could be detected, and the breasts were but slightly enlarged, if at all. The rapidity of the growth, and the fact that somewhat rough manipulation over the abdomen caused some degree of contraction, which was apparent to her as well as to myself, taken together with the supposed motion, led me to the conclusion that the case was one of tubal or interstitial pregnancy. There was considerable pain in the

right iliac region, sometimes extending down the thigh and leg. The patient declined a consultation, and about the middle of January she suffered so much inconvenience, I put her on the use of iodide and bromide of potassium. No special change occurred in the case until the middle of February, when I was called in haste, and found her in apparent labor. Pains had been occurring every five or ten minutes for about two hours. The contracting tumor could not be compelled to retain a central position except when held there. I found the os uteri dilated sufficiently to admit two fingers, and by pressing the mass well down, I could detect a sac bulging from the right side of the uterus. From this time I kept the tumor within my grasp, and increased the pressure during the pains, which now recurred every three minutes.

Within half an hour there was a free flow of water, the os was dilatable, and I could distinctly feel a head presenting where I had before felt the distended sac. I had not long to wait before the head presented at the well-dilated os, and the progress of delivery was uninterrupted. The fœtus was a male of apparently six months' development, though rather small. Life was not entirely extinct, but resuscitation was impossible. The afterbirth was thoroughly delivered in eight minutes. The lochia continued about four days. The breasts did not fill sufficiently to require any attention. The patient suffered no unusual difficulties in getting up, except a constant sore and dragging feeling in the right groin. The tumor did not disappear from the right side for about six months after delivery. On subsequent examination I found no trace of the tumor, neither could I find any indication of a double uterus. All her other pregnancies had been natural in appearance and position. Whether this pregnancy should be called tubal or interstitial I cannot say, but that it was entirely outside of the uterine cavity there is no room to doubt.

The happy termination of this case was certainly rare, and has led me to think of the possibility of operative procedure through the easily dilated os in cases of extra-uterine pregnancy where the fœtal mass is within, or in immediate proximity to, the wall of the uterus.

Batavia, Ill.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

New Remedies for Psoriasis.—The *British Medical Journal*, in an editorial, gives a very satisfactory review of this subject. Chrysophanic acid still holds a conspicuous place. Its effect in curing psoriasis is undoubted; and if it be not universally employed, it is more on account of the inconveniences connected with its use than from any doubt of its real efficacy. Several ingenious methods have been lately introduced, with the object of remedying these inconveniences. Pick recommends a mixture of gelatine and chrysophanic acid in different proportions.

Auspitz uses "traumaticin" instead of gelatine, traumaticin being a solution of one part of purified gutta percha in ten parts of chloroform. This preparation adheres closely to the skin, and remains from two to three days without change. Gelatine, on the contrary, becomes detached within several days by the rubbing of the clothes or the movement of the limbs. Traumaticin forms a much thinner and more delicate pellicle than either collodion or gelatine, and is more easily borne; and as applications made with the solution of the strength of 10 per cent. have never provoked irritation, even when applied to considerable surfaces, either in children or in adults—the chloroform evaporating slowly, and the gutta percha becoming only gradually hard—it is easy, whilst making an application, to rub it well in upon a considerable number of patches. By means of this rubbing the scales can be removed, and the chrysophanic acid directly applied to the bare and bleeding patches.

The method of Auspitz is carried out in this manner: After the scales have been removed by means of a bath and application of soap, all the patches are dabbed and rubbed with a brush steeped in a mixture of the strength of 10 per cent. If the affection be not extensive, the application is renewed each day. If it occupy a large extent of surface, it is renewed only in two or three days. If the scales be in considerable quantity, a soap bath is prescribed. If the scales be not very plentiful, soap lotions are sufficient. After one or two rubbings many of the patches appear flat, and in general the scales persist only on the borders of the patches. After two, or at the most a dozen applications, according to the intensity and extent of the psoriasis, the infiltration and scales disappear, and in their place are found white patches surrounded with a red or violet-brown border. When the disease is limited in extent, one application renewed daily for three to six days is sufficient to cause the patches to disappear, without the necessity of having recourse to lotions or baths.

M. Besnier modifies this method of Auspitz. After removing the scales, he rubs the patches with a common house-painter's brush, soaked in the mixture of chloroform and chrysophanic acid at 15 per cent. The duration and energy with which the application is made, should vary according to the thickness of the patches of psoriasis. The application gives rise to a slight sensation of heat and smarting; in a few seconds the chloroform has evaporated, and the patch is literally infiltrated with pure chrysophanic acid, having become of the deep yellow color of iodoform. It is only then that, with a large flat brush, the patch is covered with a layer of traumaticin, which must be thickly laid on, and which extends beyond the border of the patch. He has applied this method even to parts covered with hair; it has been found useful chiefly in cases of moderate infiltration, but when the patch is thick, fissured, and desquamating abundantly, the effect is not so striking. In such cases M. Besnier has used, instead of chrysophanic chloroform, a 10 per cent. solution of pyrogallic acid in ether, which is then immediately covered with a layer

of traumaticin, but this latter substance must be applied to the skin with great caution, several cases having been reported in which fatal results followed its absorption.

OBSTETRICS AND GYNÆCOLOGY.

THE APPLICATION OF ANTISEPTICS TO MIDWIFERY.—Arthur V. Macan, M.B., Master of the Rotunda Hospital, treats at some length of this subject in his report of the Rotunda Hospital for the year ending November 3rd, 1883. (*Dublin Journal of Medical Science.*)

The first rule made by him, after being appointed Master of the Rotunda, was that no student who was dissecting would be allowed to enter the hospital; vessels containing a 1 in 40 solution of carbolic acid were placed over every wash-hand basin, and he personally instructed every student who entered the hospital as to the way he thought it necessary to wash the hands. A notice was also put up in every ward, viz., "No one shall make a vaginal examination without having first washed their hands in carbolic acid solution, using a nail brush carefully."

Moreover, to lessen the necessity of making vaginal examinations, and thereby also the risk of conveying septic infection, each student is taught to palpate the abdomen, and soon recognizes without difficulty, except in exceptional cases, not only what the presentation is, but also the exact position of the child's head, back, and limbs. Also every student or nurse who examines a woman *per vaginam* has to write his or her name down on her card, so that if she should afterward prove to be infected the origin of the infection may be traced. This can readily be done, as only four students are allowed to examine any given case. As soon as the child is born, the woman is made to lie slightly on the back to prevent the entrance of air into the vagina or uterus, and there is an absolute rule against touching the woman's genitals with the fingers after delivery, except in cases of post-partem hæmorrhage, ruptured perinæum, or retained placenta, and then only by the Assistant Master. Before stitching up a ruptured perinæum, the vagina is injected with carbolic acid solution (1 in 40), and, should it be found necessary to introduce the hand, the uterus is always washed out with a similar solution. (For some months past a solution of corrosive sublimate, 1 in 2,000, has been substituted for the carbolic acid, with most satisfactory results.) In like manner the vagina is irrigated and the external genitals are carefully washed before every operation, and the uterus is syringed out afterwards, and recently a pessary containing ʒjss of iodoform has then been passed to the fundus and left there.

To prevent the possibility of infection being carried by a vaginal or uterine tube, they are all made of glass, and a separate vaginal tube is provided for every bed in the hospital. These, when in use, are kept in carbolic acid solution, and are boiled in the same solution before being again used for another patient. The old India rubber syphon syringes have been entirely replaced by irrigators, which act by gravity, and carbolic acid solution is constantly evaporated in the wards day and night. The old gum-elastic catheters have also been banished, and their places filled by silver instruments; which, both before and after being used, are placed for a considerable time in the hot evaporating carbolic solution.

He never allows any prophylactic antiseptic injections, whether vaginal or uterine, not considering it even necessary to use an antiseptic solution for washing the external genitals, which is done twice daily with plain, warm water, a piece of oakum taking the place of a sponge. Such are the precautions taken against hetero-infection. In auto-infection he attempts to meet two dangers; first, the fœtid discharge, and second, the retention of this discharge within the uterus. For the first, air must have been allowed to enter the uterus. One point of great importance, in order to prevent this, is to make the woman lie somewhat on her back as soon as the child is born. If this be not done, and the pressure of the hand is removed for a moment from the fundus, the uterus falls downwards, a vacuum is formed, into which, if the sides of the vulva from any cause, such as ruptured perinæum, are not in close apposition, air rushes. He insists, for the same reason, on the maintenance of the position on the back for some days after delivery, and the proper application of the binder. This is also of value in preventing an accumulation taking place within the uterus, as the intra-abdominal pressure is greater than when the woman is on her side, and gravity acts more thoroughly. Should the discharge become fœtid *hot* antiseptic vaginal injections are indicated, which cause the uterus to contract. If the discharge be fœtid and the temperature not only becomes high, but remains so for twenty-four to thirty-six hours, then intra-uterine antiseptic injections should be made, and an iodoform pessary introduced. If no signs of inflammation be present, the patient is encouraged to get up on the sixth day as usual. The erect position, by aiding gravity, and putting increased pressure on the fundus, causes the drainage to be more perfect, and the result is, as a rule, that the temperature quickly sinks to normal.

The iodoform pessary includes ʒj to ʒjss of the drug. It decomposes very slowly and exerts its antiseptic action for three or four days. It has a powerful effect in lessening the temperature. In the antipyretic treatment large single doses of quinine are given, 10 to 20 grains, or the bath at 90° cooled down to 60°, both combined with large quantities of alcohol. This latter measure, however, has only been resorted to once.

To show the effects of these modes of treatment, these statistics give 6 deaths out of 1,090 deliveries during the year. This mortality is *from all causes*, and there was not a single transfer of a puerperal woman to any other hospital. Among these cases there were 62 forceps, 29 breech, 16 abortions, 8 placenta prævia, 5 version, 8 adherent placenta, etc. etc. Barnes' forceps were the favorite, Tarnier's being too large. Hegar's modification of Simpson's modification of Tarnier is well spoken of. 25 cases of post partum hæmorrhage, or only 1 in 43.6, speak

well for the treatment of allowing at least fifteen minutes to elapse before expressing the placenta, the uterus being gently rubbed and kneaded during that time. In 6 cases of puerperal convulsions the treatment was chloroform, morphia subcutaneously, enemata of chloral hydrate (30 grains). Hot steam baths and pilocarpine subcutaneously (⅓ grain) in albuminuria and œdema. Dr. Macan was not able to recognize any constant rise of temperature, even to the extent of one degree, accompanying the first secretion of the milk. The report of the external maternity comprised for the year, 1,335 cases, of which 100 were abortions, 42 breech, 29 forceps, 7 placenta prævia, and 7 adherent placenta.

SURGERY.

The Conversion of Malignant Tumors into Innocent Growths.—Prof. v. Nussbaum, in a clinical lecture recently delivered in Munich (*Wien. Med. Zeit.*), expressed the belief that he had discovered a procedure for the positive cure of cancer by restraining the proliferation of the tissue elements of the disease. It appears to him that a total interruption of all peripheral sources of nutrition is the means best adapted to secure this result. He accomplishes this object by the use of the thermo-cautery, with which instrument a deep channel is made quite around the malignant growth, thus cutting off entirely the supply of blood and other nutritive fluids from the surrounding tissues. The small vessels which ascend into the tumor from the parts beneath are sufficient to preserve its vitality, so that gangrene does not occur. He thinks the thermo-cautery far preferable to the ligature, and that it possesses many advantages over the knife. He regards the hot iron and the various chemical caustics worthy of more extensive employment in the domain of malignant growths than they have ever enjoyed. Prof. Nussbaum doubts not that this circumscribing a cancerous growth, thus cutting off every channel of peripheral nutrition, has a brilliant future, especially in those desperate cases in which death is imminent from hæmorrhage. In his experience, this method of cutting off the peripheral blood supply has afforded such astonishing results that he recommends this procedure to the attention and practice of all those having occasion to treat a case adapted to its employment.—*Birmingham Medical Review.*

Pneumotomy.—The *Medical Times* has been publishing some interesting cases in which pus-secreting cavities in the lungs have been opened and drained externally with considerable success. There has also been an interesting discussion on the subject at the Royal Medical and Chirurgical Society, following the reading of a case in which this operation had been successfully accomplished by Mr. Gould, at the suggestion of Dr. Cayley. The patient was a girl about twelve years of age, suffering from a local gangrene of the lung of acute onset; other remedies had failed, and the girl was rapidly losing ground, when it was decided to puncture the lung and endeavor to drain the cavity of its gangrenous contents. So successfully was this accomplished, that a sequestrum of gangrenous lung was evacuated, and the patient made an excellent recovery. Dr. Biss subsequently related a case in which a basic abscess, with fœtid contents, had been diagnosed and a similar plan of treatment carried out by Mr. Marshall. The case was of a more chronic nature than the preceding, and not so easy of diagnosis. As might have been anticipated, it was less successful, but nevertheless the operation afforded the patient considerable relief during the short remainder of his life, and death was in no sense due to the operative measures adopted. Dr. Fowler gave the particulars of a very unusual case, that of a man who had swallowed a molar tooth. Disease of the lung with formation of a cavity in the base supervened, and threatened to prove fatal. The tooth was not removed, but the abscess was drained with a fair amount of success. Mr. Goodlee, Dr. Broadbent and Mr. Walsham related cases in point. In all alike, the advantages of freely draining away the pus were manifest, even when, from the nature of the case, a permanent cure was not attainable.

The operation consists in opening the abscess cavity, and putting in a drainage tube. It is variously done, either with or without previously incising the chest wall.

Thus Mr. Gould passed in a large trocar and canula, and, after withdrawing the trocar, introduced a drainage tube, and then withdrew the canula, leaving the tube in the cavity. Mr. Marshall cut down on the pleura, and after exposing it, pushed in his trocar to the depth of four inches. Mr. Goodlee, in his cases, excised portions of ribs, and used a scalpel, after having explored with a hollow needle in the first instance. The amount of hæmorrhage appeared to vary, but in none of the cases was it severe, and in none was there any difficulty in arresting it. As regards the pleural cavity, while most of the speakers agreed that it would be better if it had been obliterated by adhesion, some seemed to think that the importance of its obliteration had been exaggerated.

The editor in his remarks inclines to the view that a healthy pleural cavity, could it be diagnosticated, would be a strong contra-indication, as a case within his knowledge proved that the accidental introduction, even of small portions of gangrenous fluid into a healthy, pleural cavity, can be followed by severe inflammation, and possibly by gangrenous empyema.

MEDICINE.

Localized Sweating in Locomotor Ataxia.—Besides such phenomena as the altered conditions of the pupils, the gastric, intestinal, and vesical crises, the permanent acceleration of the pulse which has sometimes been observed, the alterations in the secretions of the alimentary canal, the cutaneous ecchymoses and eruptions, and the affections of the nails and joints, which point to an affection of the sympathetic nervous system in locomotor ataxy, we have now added alterations in the functions of the sweat-glands. In the *Revue de Médicine* (*Med. Times*),

M. M. Raymond and Artaud describe the case of a man, aged 46, who was the subject of ataxy, and who presented a well-marked sweating confined to the right side of his face after each meal. This came on in from ten minutes to a quarter of an hour after the meal, and was not associated with any change in the pupil; the sweating occupied the corresponding side of the head and neck, extending to the shoulder. There was no affection of smell or taste, but the patient said that there was increased flow of saliva on the affected side during the sweating. The injection of pilocarpine did not seem to cause more sweating on one side of the face than the other. The authors mention that they have already recorded two cases in which the sympathetic ganglia were found to be affected *post-mortem*, and they allude to Pierret's view, that the central region of the sympathetic lies in the posterior vesicular columns and tractus intermedio-lateralis of Clarke, a region which is very commonly found to be sclerosed in cases of locomotor ataxy.

EXOPHTHALMIC GOITRE.—In the *Ophthalmic Review* Dr. James Russell contributes a case of Graves' disease presenting some features of interest (*Med. Times*). The patient was a girl, aged 16 years, who presented decided exophthalmos on the left side only.

The lids of the right eye were retracted, producing the well-known staring appearance. In the neck there was a very small goitre, alike on the two sides. The mother said that at first the two eyes were equally prominent, and that after a time the right eye went down; though it did not regain its natural appearance, the goitre had varied but very little since it was first noticed. The patient was said to have suffered from palpitation, but made no complaint of this whilst under observation. The pulse was repeatedly examined, and was seldom above 100; it was generally under 90, and several times was less than 80. In a note appended after the paper was written, Dr. Russell states that on subsequent examinations of the pulse the average frequency of the beats had been much greater, being above 110 on a majority of occasions of examination. With this there had recurred a certain amount of exophthalmos of the right eye, though not to the same degree as in the other eye. This case seems to confirm a suggestion made by Dr. Fitzgerald in the same journal, that when the cardiac symptoms are absent the other symptoms should preponderate on the left side.

ON THE VALUE OF ISOLATED SYMPTOMS IN THE DIAGNOSIS OF DISEASE IN CHILDREN.—Politzer (*Jahrbuch für Kinderheilkunde*, Edinburgh *Clinical and Pathological Journal*) gives his expèrience, extending over more than forty years, in the Vienna Children's Hospital:

Nasal or Palatal Cry.—This is present in ozæna, generally caused by congenital syphilis, and in hypertrophy of tonsils. If not due to either of these causes, it is diagnostic of retro-pharyngeal abscess. The pharyngeal wall should always be carefully examined in such cases.

Prolonged and noisy expirations, with normal inspiration, and no sign of asphyxia, is met with in chorea major.

Sighing inspiration, which seems to originate in the upper part of the chest, indicates cardiac weakness and paralysis, sometimes fatty degeneration of the organ.

Harsh and loud diaphragmatic expiration indicates bronchial asthma.

A pause between the end of expiration and the commencement of the succeeding inspiration, points to laryngeal catarrh, associated with spasmodic laryngeal stenosis, with submucous œdema.

Continuous stridulous respiration from birth, indicates faulty innervation, due to inhibition of the vagus.

Drowsiness occurring in children, is often the first sign of basilar meningitis.

Fulness of anterior fontanelle, with feeling of resistance, is also frequently an early symptom of basilar meningitis. This is generally present in all inflammatory affections of the brain, also fevers complicated with cerebral mischief.

Depression of anterior fontanelle, usually accompanied by sunken eyeballs, shows diminished quantity of blood in the brain.

Slow movement of eyeballs, with a vacant, staring look, points to basilar meningitis.

Violent and shrill cry, lasting two or three minutes, with anxious expression of countenance, occurring an hour or two after going to sleep, indicates "night terrors." It is generally met with in delicate, nervous children.

A periodic cry, occurring during the day or at night, accompanies colic and gastro-intestinal derangement; also, dysuria and painful contraction of the bladder.

Cry accompanying defecation, is generally associated with constipation, and often with fissure of the anus.

A continuous, painful cry, with turning about of the head on the pillow and putting the hand up to the head, indicates otitis.

Persistent crying for weeks, aggravated by handling the child, and movements of the limbs, associated with fever and sweating, probably indicates rickets.

Cry of sleeplessness is often associated with congenital syphilis or chronic indigestion.

A similar cry to the last mentioned is often met with in chronic diarrhœa or purulent discharges, associated with thickening of the blood.

Physiognomy of congenital syphilis is pathognomonic.

Collapse of the nostrils, and absence of alar movement, indicates great hypertrophy of the tonsils.

A disinclination to move may indicate the beginning or existence of spinal paralysis.

Sluggishness of intellect, after brain disease, may indicate acquired idiocy.

Delayed ossification of cranial bones indicates rachitis.

Constant vomiting, occurring when the fontanelles are closed, indicates acute mischief in chronic hydrocephalus.

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Partial Optic Nerve Atrophy in Lead Poisoning.—Dr. Uhthoff,[1] of Berlin, publishes two cases of well-marked central blindness associated with normal peripheral visual acuity, which he refers to lead poisoning. Both male patients, one 57 and the other 18 years old. Both came under his observation about a year after the commencement of the trouble. The optic-discs, especially the temporal halves, exhibited well-marked atrophic change, whilst the nasal halves, although paler than normal, exhibited a pinkish color. Both patients were markedly asthenopic, being able merely to count fingers at a distance of six or seven inches, and each eye exhibited a well-marked and relatively large central field of absolute blindness, whilst the peripheral vision was normal. The one of 18 years was a painter's apprentice, and was attacked one month after the commencement of his apprentisage. He had been working with white lead. At the outset his sight seemed to improve, but finally remained in the condition indicated. The other manifestations of lead poisoning disappeared. The difficulty appeared suddenly, and was associated with vertigo.

The second case, of 57 years, was a worker in a rubber factory, in which lead was used. In the years from 1854 to 1868 he had several times suffered from lead poisoning, as exhibited by lead-colic, contracture of the left forearm, pain in the left leg, and later on, emaciation of the left arm. In 1866 occurred a certain mental disturbance which disappeared when he quit his work. In the same year he suffered from a clouded condition of the sight. From this time up to 1882 he was in good health, notwithstanding that he was again at work in the rubber factory. A small fire breaking out in the workshop, he exerted himself to the utmost to extinguish it, and then, overcome by the exertion, he was senseless for a short while. From this time he dated the peculiar visual disturbance, which at the first seemed to improve, but afterwards it remained with a central defect of vision, amounting to about 15° in every direction from the point of fixation. There was developed at the same time with the disturbance of vision a certain stiffness of the legs, resulting in an unsteady gait. The general conditions improved, but the visual anomaly remained, and the pupils were insensitive to light. In neither case was there albumen in the urine.

[1] Beiträge z. Pathologie des Sehnerven, etc., 1884.

Spasm of the Orbicularis and Possibly Cataract Due to Dental Irritation.—Mr. H. Sewill, M.R.C.S., reports an interesting case in British Medical Journal, May 10, 1884, of which the following constitute the main features: A nervous middle aged spinster with facial spasm and neuralgia on the right side of the face and head, associated with spasm of the orbicularis. There was great tenderness in the region of the right upper canine; the neighboring teeth were much encrusted with tartar and the gums were red and swollen. The lens of the right eye is said to be "almost opaque." Dr. Ferrier, who examined the case, supposed that the dental irritation was the cause of the trophic disorder leading to cataract.

Examination of the mouth revealed a vulcanite plate which had not been removed "for years," and together with the teeth was covered with tartar. The whole of the teeth were carious, but the right canine was broken down nearly to the gum with considerable swelling extending upwards over the root. Pus could be pressed from small fistulous openings over the roots of all the teeth. The lower teeth, ten in number, were hidden beneath a mass of tartar which extended a half an inch over the floor of the mouth. Within two days after the extraction of the teeth the spasm entirely disappeared and the patient's health rapidly improved, but no change took place in the damaged lens.

The above case is cited not as a proven case of cataract due to dental irritation, but as at least a not improbable one.

Cholera Report.—The news for the present week from Marseilles and Toulon is more favorable.

Cooler weather has prevailed, and the rate of mortality has been materially diminished. Admiral Krantz, in command of the fleet at Toulon, telegraphed under date, July 28, to Paris, that he is sanguine of a daily diminution in the number of deaths in that city.

Cases are numerous in the suburbs of the cities named, but the progress of the epidemic is not so rapid as we had reason to fear.

The rumor of the introduction of cholera to St. Louis, by the way of New Orleans, is entirely without foundation, as appears from the report of Joseph H. Holt, President of the Louisiana State Board of Health to Surgeon-General Hamilton, of the Marine Hospital Service.

We have reason to believe that the authorities by sea and by land are moving with commendable activity, to arrest so far as human agencies can, the progress of the impending scourge.

ABOLITION OF MARINE-HOSPITAL DUES.—Section 15 of a bill recently passed by Congress, reads as follows:

"SEC. 15. That sections forty-five hundred and eighty-five, forty-five hundred and eighty-six, and forty-five hundred and eighty-seven of the Revised Statutes, and all other acts and parts of acts providing for the assessment and collection of a hospital tax for seamen, are hereby repealed, and the expense of maintaining the Marine Hospital Service shall hereafter be borne by the United States out of the receipts for duties on tonnage provided for by this act; and so much thereof as may be necessary, is hereby appropriated for that purpose."

This puts an end to the collection of a tax on sailors to support the Marine Hospital service, and substitutes therefor so much as may be necessary of the revenue derived from the tax on the tonnage of vessels. The vessel owners, and not the sailors, will hereafter bear the burden of supporting the system of Marine Hospitals throughout the whole of our country.

SEWERAGE EPURATION.—In this and the preceding number we publish the excellent and important paper of Dr. Barnes, presented to a Section of the Suffolk District Medical Society of Massachusetts, on this subject. It was placed on file for the JOURNAL three or four weeks previously, but was postponed from pressure of other matter. At the present time, when so much of attention is given to sanitary matters, on account of the threatened invasion of epidemic cholera, the paper of Dr. Barnes is opportune, and should be carefully read, not only by all engaged directly in sanitary work, but by every practicing physician. For the question how to dispose of the sewage and waste organic material necessarily accompanying the aggregation of the human race in families and permanent communities, in a harmless and profitable manner, is one of paramount importance, not only to large cities and densely populated communities, but also to every isolated institution and family. And no other member of human society can exert as much influence in giving direction to this and every other variety of sanitary work, as the active practicing physician, whose influence extends into almost every household, whether in city or country.

SOCIETY PROCEEDINGS.

SEWERAGE SYSTEMS AND THE EPURATION OF SEWAGE BY IRRIGATION AND AGRICULTURE.

BY HENRY J. BARNES, M.D.

(*Continued from last week.*)

PRECIPITATION BY CHEMICAL MEANS AT COVENTRY, ENGLAND.

Population 40,000. Five thousand water closets connected with the sewers, which discharged 2,289,000 gallons of sewage in the river Sherborne. Complaint and litigation was the result. A reservoir of deposit was constructed, after which the sewage was allowed to filter across a gravel bed three feet thick. This proved unsatisfactory, as only solid matter was taken out, and the court again interfered with an injunction. A contract was then made with a fertilizer company, which agreed to epurate the sewage for fourteen years at $3,750 per year, the company engaging to erect buildings and machinery, and furnish the necessary tools. An extractor first separates the solid matter. The liquid is then run into caldrons under the first group of buildings. Agitators mix impure sulphate of alumina with it at a boiling temperature. It then passes into a second set of vessels, where milk of lime is added and thoroughly mixed, then discharged alternately into four reservoirs in the open air, which are cleaned every fourth day. The liquid thus treated comes out sufficiently pure, and is allowed to filter over about four acres, and finally find its way into the river. Thirty tons of detritus are taken each day from the reservoirs, piled to dry, and subsequently treated by artificial heat. The works are not in operation at night, except the discharge of the sewage on the filter beds. Twenty-two tons of coal, one ton of sulphuric acid, nine tons of sulphate of alumina, and four tons of lime are used each week. The company's net loss is about $7,500 each year.

After long and costly experiments the greatest

"Millions of dollars have been expended in France in chemical experiments on sewage, all of which have been condemned." *J. Babut du Maris.*

chemists have declared that in practice the only manner to epurate sewage is to send it on the land, which eliminates the polluting elements and fertilizing matter for the good of vegetation and the soil. Dr. Angus Smith says; "In all cases the best results are obtained by irrigation." And Dr. Carpenter certifies in a notice read at the International Congress in 1881 "the only way ammonia can be eliminated from sewage is by irrigation."

A commission appointed by Parliament, composed of Messrs. Dennison, Frankland, and Morton, reported: "The actual resources of chemistry do not permit the hope that the polluting matter dissolved in sewage can be precipitated and sent away by any appliance of chemical reaction, and unless new chemical laws are discovered it is useless to attempt the employment of chemical agents. Epuration must be confided to Dame Nature.

At the Women's Prison in Sherborn, Mass., epuration of sewage is attempted by what is known as Colonel Waring's method. Five acres of land are here employed, in the water-shed of Lake Cochituate, about two miles from the lake, with which it is connected by a brook, one of the tributaries of Boston's water supply. The sewage is distributed over the land by tile-drains with broken joints laid fourteen inches below the surface, five feet apart. The effluent drainage is provided for by cross sections of tile laid five feet under ground, which after collecting the water, discharge in the brook. This system is said by the prison authorities to work satisfactorily.

"The water coming from the ground is as clear as spring water, and was selected by an expert as such on inspection." This only indicates clarification, and we regret that analyses made were not published, as no one seems to know where they are at the present time. There can be no doubt but the grass, which is the vegetation on the land, takes nourishment from the sewage, for the lines of drain are clearly marked by a better growth directly over them, which does not extend to the intervals between. One of the defects of this system has already been experienced. Insoluble matter has filled the interstices between the tiles, and prevented fluids from passing through, necessitating their being taken up and relaid. At a depth of fourteen inches the influence of vegetation and the infusoria must be lost on much of the sewage, which was probably disclosed by the analyses, rendering it desirable, that they should be pigeon-holed. (Since writing the preceding a visit to the prison more than confirms the anticipated objection to the system). And the following analysis obtained in the office of the State Board of Health is proof beyond dispute that the system amounts to nothing by way of purifying the sewage, and that it is practically a mammoth cesspool, the contents of which the citizens of Boston must drink:—

WOMEN'S PRISON SYSTEM. PARTS PER 100,000.

	Ammonia.	Alb. Ammon.	Chlorine.	Residue.
Supply End.	.240	.018	9.58	68.5
Flow End.	.232	.034	9.22	69.0

The exclusion of air from the sewage of this system keeps it fresh, the nitrogen is in an organic state, and consequently of no use to vegetation. A fertilizer should become ammoniacal by decomposition before it is possible of assimilation by plants. Analyses of sewage in Europe reveal the fact that there is no loss of fertilizing material in a closed conduit having a run of seven and one-half miles. And examinations of the soil of sewage farms show that in all instances the sand one foot below the surface is as pure and white as that where irrigation is not practiced.

In the Mystic valley the sewage of tanneries has for several years been pumped by the city of Boston into reservoirs of deposit obviously too small to eliminate even the matter in suspension. From the tank there is an overflow into a shallow ditch several hundred feet long, in which are set several brush dams, after which it discharges into the Mystic lower basin. The result of this treatment is to start putrefaction by warmth and free exposure to air, and thus produce a stench which people living in the vicinity claim has greatly reduced the value of real estate. It does not merit extended description, as the effort thus far made merely amounts to a flirtation with the subject.

A few of the farmers living along the Blackstone river are beginning to appreciate the valuable fertilizing material conveyed by the current from Worcester, Mass. One farmer states that his meadow lands which were practically abandoned, it not paying to harvest the grass, now produce crops which add several hundred dollars a year to the value of his farm. Others are placing obstructions in the river, with the object of turning the water on the land.

During the past ten years sanitarians and engineers have made great progress towards a solution of this question, and it is fair to presume from the great increase in the number of cities and towns that have adopted irrigation and agriculture as the means of purifying sewage that this method has proved the most satisfactory. Berlin has two large farms devoted to this object, one of 2035 acres and another of 1818 acres. A great many chemical experiments were tried before the adoption of the present system. They proved very expensive, and none purified the water, although many clarified it. Finally, after experimenting in irrigation and agriculture for eighteen months on a little field of about three hectares (less than seven and one-half acres), such favorable results were realized that this system was adopted for the city, the eminent Virchow working heartily in its favor. At the present time 1067 acres suffice to purify 15,060,000 gallons per day, the drainage of four-fifths of the city, containing a population of over 600,000. There is some odor at the opening of the large sewer, but in the fields there is no smell, and the sanitary condition is all that could be desired. There never has been any complaint from the numerous adjoining habitations, and the effluent drain water of the farms is pure and clear, it being impossible to recognize by microscopy or chemistry any influences of the sewage. Vegetables and fruit trees grow luxuriantly on the land, and their roots make a perfect filter. Thirteen and one quarter tons of hay

have been cut per hectare (a little less than two and one half acres).

Dantzic, situated about three miles from the Baltic, on account of pollution of its harbor at the mouth of the Vistula, constructed a sewer to discharge on a sandy island having little or no soil, where the occasional tufts of grass were frequently covered with sand carried by the wind. As a result, the island is now in a high state of cultivation. In some parts the land rents to peasants at from twenty to thirty dollars per acre. The frosts of winter do not interfere with the successful operation, as the water delivered by the sewer melts the snow and ice, so that it finds its way into the ground quite as well as in summer, and without injury to the slumbering vegetation. Odessa, Breslau, and Florence also have sewage farms. M. A. Durand-Claye, from whose reports this information is derived, says that "in Germany, it is admitted without question that municipal healthfulness depends upon three principles: first, the total discharge of water-closets in sewers; second, the distribution of an abundant supply of water in dwellings, and frequent flushing of drains; third, the purification of sewage by soil and vegetation."

In England, there are two hundred cities and towns disposing of sewage by irrigation and agriculture. On the farms at Edinburgh are located beautiful nurseries for the children of the city. At Lochend, a farm taking sewage from this city has produced $200 worth of hay per acre. The Metropolitan Sewer Company of London rents land at $100 per acre for grazing. Sixteen acres at Rugby furnish feed for fifty-four head of cattle, and at Aldershot, Branbury, Bedford, Croydon, Norwood, Warwick, and Worthing, the reports in detail show an equally wonderful production from the land treated in this manner.

Leamington, with 26,000 inhabitants, spent $40,000 in chemical experiments, after which the A. B. C. Company, in 1869, attempted to purify the sewage, but gave it up in 1871. It was then allowed to flow into the river Leam. A lawsuit followed, costing the city $25,000, in which it was defeated, and compelled, at an expense of $7,500 more, to purify the river. Lord Warwick then consented to receive the sewage on his estates, the city contracting to deliver it at the highest point of the farm for a period of thirty-two years, for which Lord Warwick engages to pay $2,250 annually. The sewage amounts to a little over 1,000,000 gallons per day, and is distributed over the land, which has not been leveled, by what is known as the "donkey back" system,—elevated open drains, on the sides of which is the vegetation. It has transformed the poorest parts of the farm into soil of much fertility, and financially has proved a great success. From eight to nine cuts of Italian rye grass two feet high are made each year. Celery, strawberries, and currants grow remarkably well. The beef, milk, and butter is in great demand, and bring the highest prices. The laborers are in the best of health, and Lord Warwick has received numerous prizes and silver cups for one of the best kept farms in the kingdom. A more detailed account may be found in Babut du Maris' work.

The Sewage farm at Croydon is surrounded by beautiful villas, it being a fashionable resort. The land which twenty years ago sold for about $300 per acre, is now worth from $2,000 to $5,000. There has been but one complaint of the farm during the past twelve years, and this resulted from excessive irrigation during a long period of stormy weather, when the hay could not be dried on the land.

A public footpath crosses the sewage farm at Abingdon. There has been no complaint from bad odor.

Babut du Maris says: "It has been claimed that prolonged irrigation will produce disease by the presence of bacteria in the sewage. Experience is to the contrary. The farms at Edinburgh have received the sewage for over two centuries, that at Buntzlau for two and a half centuries, and for more than ten centuries it has been in practice in China. Vegetation has never ceased to be vigorous and healthy, and the inhabitants have never been known to suffer in consequence of irrigation."

I am informed by a gentleman who has resided seven or eight years in China that in all the large cities the detritus is carried into the suburbs by hand buckets and deposited on the lands for the benefit of vegetation, and in many instances the same pails serve to bring back drinking water, with no ill effect except in a few northern cities, where the sewage is put on the leaves of vegetation; there the tape-worm is very common. Dr. Williams, in his work entitled "The Middle Kingdom," does not include typhus, typhoid, scarlet fever, or diphtheria in a list of the prevalent diseases of China.

It is difficult to make comparisons or draw conclusions when considering this question financially, for the paramount objects to be attained vary in different communities. One town may seek only to get rid of the sewage, another its most profitable employment on the land, another relief from the pollution of a water-course or preservation of its navigability; grotesque and unprofitable experiments and local conditions all contributing to make balance sheets of great diversity in showing either profit or loss. Many examples of each are available, and should of course be carefully studied.

The city of Paris, for many years harassed by constant complaint and litigation as a result of discharging sewage in the Seine, some years since established sewage farms on the plains of Gennevilliers, the history of which is told in a report to the municipal council by the sixth Commission appointed to treat with the state for the concession of such public lands at Achères as are necessary for the epuration of the sewage by irrigation and agriculture.

ORIGIN OF THE QUESTION.

Before the execution of the measures conceived by M. Belgrand for the general healthfulness of Paris, the rain water and the washings of the streets flowed into the Seine, either directly, or by a great number of drains emptying on the quays of each bank the whole length of Paris. This mode of drainage resulted in the immediate and pronounced pollution of the water in the river, which reached the maximum at the point where it leaves the city. The work of Belgrand had for its result the concentration of four-fifths of the drain water in a large sewer opening into

the river at Clichy, while the remainder was discharged at St. Denis. At the same time the water for domestic supply was largely increased. In 1860 30,000,000 gallons per day were furnished for this purpose; in 1882 92,000,000 gallons were required each day, or 34,020,000,000 gallons per year. This, with the rain water which falls on the city, estimated at from 9,576,000,000 to 11,340,000,000 gallons, makes a total of 44,100,000,000 to 45,360,000,000 gallons, which, were it not for evaporation and other loss, should be carried by the sewers. This loss amounts to something like 18,900,000,000 gallons per year, as indicated by gauges in the two sewers, which register 26,208,000,000 gallons,—about 42 per cent. disappearing by evaporation. At low water of the Seine it is equal to one part of drain water to twenty of river water, and at high water to one part in 350. As a result of currents and obstacles in the river, mixing did not take place; and the right bank—the most densely peopled—received on a very long margin the totality of the drain water, depositing all the way organic matter brought in suspension. Protestations from people living along the right bank of the river followed very closely the opening of the two great sewers; and the state government required the city of Paris to seriously consider methods of purifying the sewage before discharging it into the river. The savants, engineers, chemists, traders and agriculturists discussed the subject in all its phases, and to the latter we are indebted for practical solution of the problem.

Filtrage was naturally the first system to be tried. It was soon found that, besides the actual difficulties of filtration on so large a scale, this mode of treatment had the capital vice of leaving in the water soluble organic matter capable of fermentation, and later, chemical agents were resorted to with the object of precipitating the soluble matter, but only incomplete results were obtained, which were slow, costly, and inapplicable on so large a scale.

We now come to the experiment which after fifteen years of study and persevering effort has given a result most complete and satisfactory. Epuration and utilization by agriculture, and filtration by spreading the sewage on permeable land have accomplished this end. It is based on simple principles, of which the demonstration is now made. All argilo-silicious and permeable soils sufficiently thick and well drained, have the property of retaining in their superior layers all the organic matter in suspension and solution contained in drain water spread on the surface of the land. It can receive without being made damp or marshy one inch of water per day, or twenty-six feet per year. It transforms the retained organic matter, rendering it capable of assimilation by plants. A very ingenious experiment just made shows this valuable property in the vegetable mould. A hollow column two metres in height was filled with earth in a manner to reproduce exactly the soil as found at Gennevilliers. Through this was passed sewage in a relative quantity to that employed in irrigation and at equal intervals with its use on the land. Epuration took place as completely as in the natural earth. Chloroform was then passed through the column, which at once arrested epuration, and the sewage traversed the column without being purified. Paralyzation of the infusoria stopped oxidation of the organic matter. This experiment has been demonstrated by M. Schloessing, and is described in the report to the Council of Hygiene. If the surface irrigated is under cultivation the fertilizing matter is immediately utilized; if not, it accumulates without loss and transforms the poorest soil into land of extreme fertility.

A very large proportion of the water used in irrigation is evaporated either directly or by the plants in vegetation. The residuary water coming from the subsoil drains is of a remarkable purity, and does not suggest either by aspect or composition the sewage from which it proceeds. Irrigation is the most economical and efficacious means of conveying directly to the plants the fertilizing matter of sewage.

Trusting in these principles, and fortified by the works of Messrs. De Freycinet, Schloessing, Marié-Davy, and Frankland, the engineers of the municipal service have, since 1867, pursued studies and made experiments for which, notably since 1872, the council has furnished a large amount of money. These efforts have had as a result the great and actual demonstration at Gennevilliers, which evidence impresses favorably all unprejudiced persons who take the trouble to visit the lands.

After some experimental cultivation at Clichy in 1867 and 1868 the irrigation of the plains of Gennevilliers was begun in 1869 by Messrs. Mille and Durand-Claye. In 1870 and 1872 the territory comprised but a few hectares. It has increased each year, until now over 400 hectares are thus employed (about 1200 acres, which receive nearly one fourth the sewage of the city). In the beginning the water distributed was limited to a few thousand cubic metres. In 1872 444,000,000 gallons were used. In 1881 4,685,000,000 gallons were discharged on the land. In May of this year (1881) 684,300,000 gallons—22,050,000 gallons per day, or 44,100 gallons per hectare per day—these plains absorbed. In 1882, at the time of the report, the distribution reached 34,020,000 gallons per day, or 79,300 gallons per hectare, which represents a sheet of water spread over the surface equal to a little over one inch per day.

The progress, the slowness of which astonishes us now, has not been obtained without difficulty. At the origin, the engineers, relying too much on the very great permeability of the land, had not thought it necessary to establish subsoil drainage. The natural drainage, in consequence of an abundant irrigation, was found insufficient. The level of the subsoil water rose; a few cellars were flooded at Gennevilliers, and gravel quarries were inundated. This was sufficient excuse for a claim for excessive damages against so rich a victim as the city of Paris. To increase the indemnity and to compel a compromise, all possible arguments were employed. Doctor was opposed to doctor, and hygienist to statistician, when it was only a question of a few thousand francs damage to the claimants. These demands were opposed by the engineers, who in

turn were very decidedly sustained and supplied with money by the municipal council. The necessary work to insure the drainage of the plains and to remove all pretext for damages was done, and to-day the complaint is rather of the lowering of the subsoil water. Nevertheless irrigation at Gennevilliers created a prosperity until then unknown, and a time arrived when the community, frightened by the possible result of its demands and outcries,—which threatened to be the suppression of irrigation,—asked for a contract, the principal article of which was that the city should engage to continue irrigation on the plains of Gennevilliers for twelve years.

The efficacy of this system of epuration is manifest, and presents a brilliant proof. The effluent drain water has fewer micro-organisms than the water of the Seine when it enters Paris. It has the purity of spring water coming from the earth. To demonstrate the utility of the system as applied to agriculture has been slow and difficult, and not less laborious than the efficacy of epuration. For the latter the analyses made by the savants were proof beyond dispute, for the former the concurrence of the humblest practitioner; and it required time, much time.

The slowness of experiments in agriculture may be understood when we remember that to reach an end we must go through all the phases of vegetation, from the sowing of the seed to the harvest. Under our climate it is a campaign a year. If we neglect a detail, if we make a mistake at the time of sowing or planting, at the time of plowing or watering, the harvest may be a failure, and we must begin again. The difficulty was increased by local circumstances. Amongst the cultivators of land in the suburbs of Paris, no one knew the practical working of a sewage farm. One of the persistent workers who had been rewarded by success said recently that it required more than four years to acquire the necessary knowledge. To-day our cultivators are in complete possession of their art, and in the recent horticultural exhibition every one admired the remarkable products which received honorable distinctions.

In agriculture, successes which would be shown by beautiful samples obtained in the fields of experiment would be objects of curiosity. It is necessary to secure economical results, and these go far beyond the utmost expectations. For the landlord of the soil the rent value of the hectare has increased fivefold — from 90 to 450 francs. For the farmer or cultivator the prosperity has not been less. The net value of vegetable products rose from little or nothing to 4,000 francs per hectare.

In a sanitary point of view, the results have not been less satisfactory, and here again it is necessary to observe the facts on the ground. One sees a numerous population, robust and healthy in proportion to its prosperity. Its vigor assures a healthy nutrition equivalent to its works, which is the best hygiene.

As to the effects of irrigation, the same occurs at Gennevilliers, which always takes place where irrigation is practiced: from the moment it is made frequent, without stagnation, and at regular intervals, a condition which is far from favorable for the development of paludal influences. The determining causes are eliminated; a constant activity is maintained in the vegetable life, which absorbs in its circulation all its own residues and all the organic elements placed within reach. Highly to the honor of the city of Paris be it said that, by the perseverance of its representatives, by the science and devotion of its engineers, the problem of epuration of the residues of cities and of their utilization by agriculture is absolutely and definitely solved. We have no longer the experiment of Gennevilliers; we have a system permanent and regular for the future.

The population of Gennevilliers has increased by farmers coming to occupy the lands, 34 per cent. in ten years.

Among the city documents of Paris lately presented to the city of Boston, and placed in the Public Library, may be seen photographs of the departments of this branch of the municipal service, as well as of the products of the land. The commission, in recommending the acceptance by the city of the terms which the State proposes for the extension of the work so as to include the sewage of the entire city, recommends a municipal ordinance which shall require all the water-closets in the city to be connected with the drains, and an absolute abandonment of cesspools, which now are so common in Paris. Up to the present time the city has declined to accede to the terms of the State, as they are deemed too exacting, and require a very large amount of money for the purchase of the land. The success of epuration by this method is not questioned. "The work of Babut du Maris, lately published, says "the city has just obtained 2,500 acres for the extension of the sewage farm."

The highly satisfactory operation of this system at Dantzic, where the rigorous climate of winter is as great an obstacle to overcome as here in Massachusetts, is sufficient proof that frost is not an objection to its employment on our soil. The land freezes four feet deep at Dantzic. The Vistula is frozen over from the middle of November to March, yet the temperature of the sewage at the mouth of the sewer never goes below 37° F. Irrigation is continued throughout the year with quite as much success in epuration in winter as in summer, although vegetation flourishes but four out of the twelve months.

Sewage in freezing, says Babut du Maris, eliminates its dissolved fertilizing material as thoroughly as salt water eliminates salt by the same process.

There must be abundance of land in the valley of the Blackstone, the Merrimac, and the Connecticut suitable for farms of this character. There is land bordering on Lake Cochituate well adapted to farming, for the protection of the lake from the sewage of Pegan Brook. In Arlington, Belmont, and Medford are vegetable farms favorably located, and soil well suited to this system; and before the community embarks in a scheme to build a metropolitan sewer from Natick to tide-water, which, when finished, will be of doubtful utility, judging from the experience of London, this system should be tested with the object of requiring each and every community to take care of its own sewage.

We have in the soil a chemical laboratory, a perfect filter, oxidation, vegetation, the influence of animal life and the infusoria combining to protect the subsoil water, and so far as experience goes or chemical analyses can demonstrate, these processes of nature are amply sufficient.

We do not hesitate in covering our fields with fertilizing material where are located springs and wells. We are only solicitous lest the surface water should convey the material to them, and we raise an embankment above the level of the surrounding land, and otherwise leave to nature the protection of our drinking-water with full confidence in "*vis conservatrix naturæ*," and if her processes are not complete and perfect the whole world is gradually becoming saturated with filth.

STATE MEDICINE.

CHOLERA-RESEARCHES OF DR. ROBERT KOCH.

Translated from the *Courier des Etats Unis*. By S. Pollak, M.D., St. Louis.

MARSEILLES, July 10.

At a conference of physicians with Dr. Koch at the Pharo-Hospital, a careful microscopical examination was made of the microbes, which Dr. Koch brought from India.

He was asked whether he ever found the microbes in the blood. Never, was his answer. He demonstrated that the choleric microbes are half as large as the typhoid microbes, and have, besides, an oblong form. He found them in the most fulminating cases of cholera. In no other epidemic disease did he find the microbe so characteristic as in cholera. The microbe is not sporous. It is a scissiparitous product, it lives in an alkaline liquid; is destroyed by acidity, and still more by siccity. Three hours of siccity suffice to kill it in the dejections. Its channels of introduction are the mouth, the digestive organs, and the intestines. If it is in the air, it is soon reduced to a powder, and enters the lungs, without harm. In the intestines it multiplies rapidly.

When asked by the President of the Sanitary Commission about prophylactics, he said, that the bacilli live in water, and the virulent germ propagates itself. It can be propagated by the washing of vegetables or other aliments. The first measure which should be rigorously prescribed is to use only cooked aliments, in which the microbe cannot exist.

The treatment recommended by him in the beginning is opium, which must be discontinued as soon as the algide state is reached; stimulants may then become necessary, though he could indicate none. As soon as chilliness sets in, nothing can be done. He washes his hands in a solution of bichloride of mercury, $\frac{1}{1000}$, eats only well-cooked food, and drinks only boiled water.

Before leaving Toulon, Dr. Koch addressed the following communication to the Council of Hygiene:

Cholera propagates itself in assemblages of men; its principle is unexceptionally communicated by direct contact with men, or with their wearing apparel.

In cholera times, a well-regulated life must be led; experience has demonstrated that troubles of digestion favor an attack of cholera. Excesses in eating and drinking, the use of heavy, indigestible food, must be avoided, and also anything which may cause diarrhœa. A physician should be called in immediately. Never absorb anything which comes from a contaminated source; when in doubt whence it came, subject it to a thorough cooking, and especially so milk.

Water tainted by human detritus is forbidden; avoid the use of doubtful water, of water drawn from shallow wells or a swamp, a pond, or from a creek receiving vitiated water. Consider as essentially dangerous water which has been in any manner soiled by choleric dejections. Water which has been used for rinsing vessels, or washing of clothing, should not be poured into a well or into a running stream. It is impossible to get absolutely pure water, the simplest way is therefore to have it boiled.

These observations refer not only to water used for drinking, but to water used in the household; for the choleric germ, once existing in the water, can be communicated to all who make use of it, whether in the laundry, scullery, kitchen or bath. The most important consequences of these remarks are, that it is not sufficient to guard against cholera, to use pure, or even boiled water.

One case of cholera can become the focus of an epidemic, hence cholera patients should be removed from contact with all those not absolutely necessary to take care of them.

Public assemblages, fairs, fetes, should be avoided. Never eat or drink in a room where the choleric are; their dejections should be collected in vessels containing a phenic solution.

All objects soiled by the dejections should be cleansed with dry cloths, which have to be burned immediately. Apartments which have been occupied by the choleric should remain vacant for six days.

Persons who are brought in contact with cholera patients, should wash their hands with soap and phenic acid, or solution of bichloride of mercury $\frac{1}{1000}$. Cadavers should be removed immediately, and the funerals should be simplicity itself. The cortege should not enter the mortuary house, and none of the objects belonging to the choleric should be removed without having been previously disinfected.

Laundresses should not receive the linen coming from a choleric, without having undergone thorough disinfection.

OPACITIES OF THE CORNEA.—Dr. Michel recommends sulphate of cadmium, of the strength of two and a half grains to the ounce of mucilage, as an application to opacities of the cornea. A camel's-hair brush, dipped in this wash, is applied to the centre of the spot and retained in contact with it for a few seconds. At first the application is made once a day, but after a while is repeated two or three times in the twenty-four hours. When the pain grows less, the strength of the solution may be increased to five grains or even seven grains to the ounce. When the opacity is of recent formation it readily disappears under this treatment, but when it is of old date the applications must be long continued. (Practitioner, Jan., p. 53.)

BOOK REVIEWS.

THEORY AND PRACTICE OF MEDICINE. BY FREDERICK T. ROBERTS, M.D. Illustrated. Fifth American Edition. Publishers, P. Blakiston, Son & Co.

This work is so well known to American Medical men that an extended notice of it is superfluous. The present edition consists of a single volume of a thousand pages. Numerous additions have been made to the subject matter in order to incorporate the most recent discoveries. The characteristics of the work are fullness without prolixity. The work is, as it always has been, an excellent manual.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

THE PATENT MEDICINE STAMP ACT—THE ENGLISH BOARD OF INLAND REVENUE DECISION AGAINST NOSTRUMS, SPECIFICS, AND LEGITIMATE FOREIGN DRUGS.

LONDON, July 14, 1884.

The recent decision of the Board of Inland Revenue against legitimate foreign drugs, as well as all patent medicine, has caused great dissatisfaction among both the medical and pharmaceutical professions throughout the Kingdom. It appears that the action of the Board was made specially upon the medicinal preparations of Park, Davis & Co., many of which are now being largely used in GREAT Britain. The Stamp Act of 1812, which has thus been unjustly interpreted by the board against the profession of this country, was in vogue when both pharmacy and medicine were in their infancy. English pharmacists and physicians no longer depend upon their own home products for fine preparations and good therapeutic results, but upon the valued remedies obtained from all parts of the world. In other words, the great strides of these two professions in England have outgrown this obsolete Stamp Act, and the decision recently rendered has caused universal regret. In fact, the English physicians and pharmacists are most liberal in all matters that concern their respective departments. They are anxious —in truth, enthusiastic—to test the merits of all preparations that may come from any nation on the earth, and especially desirous of using American drugs. During my short stay in London, in visiting the various hospitals, I have been most agreeably surprised to find the large quantity of American and other foreign drugs that are in constant use in these institutions. The therapeutists connected with these hospitals, who are ranked as the best and most scientific in the world, are the most liberal and progressive in their opinions. For instance, the collection of drugs used by Dr. William Murrell, one of the most prominent teachers of Materia Medica and Therapeutics at the Westminster School, includes all the recent preparations, both simple and compound, found in use at the present day. There was convallaramin and all the other important alkaloids, and jequirity, and even a full line of those useful and practical remedies, the oleates, that have been introduced and so largely manufactured by Dr. Lawrence Wolff, the chemist, of Philadelphia. A full line of foreign drugs are not used alone in the institution just named, but in all the schools in this great European medical centre. It can therefore be clearly seen what a great inconvenience and dissatisfaction the recent decision of the Board of Inland Revenue will create. It will limit the usefulness of therapeutics in the United Kingdom. This increase of price on legitimate foreign drugs by the patent-medicine Stamp act will place them, in the great majority of cases in practice, beyond general use by practitioners for their patients. English physicians are practical in all matters, and they always study economy for the sake of those they serve so well. This unfortunate Stamp act has, however, operated largely in favor of patent medicines ever since it has been in existence. Thus, the government stamps officially all worthless trash, and the gullible public are impressed with the conviction that the drug so highly endorsed must be good, pure, and perfect. The most ingenious, as well as poisonous combinations are thus easily, under the protection of the government, dispensed without a word of caution to the people. I am pleased, however, to see that the profession are awake to the needs of the times, and are actively pushing a bill before Parliament which will eradicate all the abuses of this act. The bill has a very large support, and the profession are all convinced that it will soon pass and become a law that will benefit the people directly. S.

DOMESTIC CORRESPONDENCE.

BOSTON LETTER.

The Annual Meeting of the Massachusetts Medical Society for the current year, constituting the one hundred and third (103) anniversary, was held in Boston, June 10 and 11. The number of members present was unusually large, and there was a great amount of interest in the proceedings of the meeting. The weather was fine. The arrangements for the meeting were admirably conducted by a strong committee consisting of six of the most energetic, public-spirited of the younger physicians of Boston, aided by the hearty coöperation of a large corps of able and willing assistants.

The anniversary exercises were inaugurated by an invitation to the Fellows of the Society to visit and inspect the Massachusetts General Hospital, the City Hospital, the new Children's Hospital, and the Lying-in Hospital. These institutions were the object of attention on the part of many of the Society until 12 o'clock, when the larger number of delegates assembled in the spacious hall of the new Harvard Medical School to listen to the address of Prof. H. P. Bow-

ditch on "Methods of Instruction and Research in Physiology with Demonstrations." The address was of great interest, and portrayed and illustrated the vast advances which have been made in the science of Physiology and in the modes of teaching, whereby laboratory experiments and absolute demonstrations have replaced to a great extent the tiresome didactic lectures of a few years ago. During the essay various experiments illustrative of the methods employed in physiological research were performed before the audience to their great satisfaction.

Dr. Thos. Dwight, Professor of Anatomy, also gave a lecture and demonstration illustrative of the improvements which have been devised both for the didactic and for the experimental teaching of this important branch of the medical art, and the Fellows of the Society were shown the manner in which the dissection of subjects has been so influenced by modern hygiene, that even this most repulsive part of a student's curriculum has been made tolerable, if not attractive. The demonstrations of anatomy for which Prof. Dwight is justly celebrated were very interesting and the Society testified its appreciation of their practical character and artistic execution. At 3 P. M. Dr. Geo. W. Gay, Surgeon to the Boston City Hospital, described the "Peuster Posterior Splint in Fractures of the Leg" and made a practical application of the splint to a patient before the audience. An extended description of this apparatus is deferred at this time, as it is hoped that a full report of Dr. Gay's paper with illustrations may soon appear, which will be forwarded to the JOURNAL as early as possible. Any further attempt to do justice to the subject at this time would extend this letter to an unwarrantable length.

An adjourned meeting of the Society was held at 4 o'clock, for the transaction of business, and this proved to be the most exciting event in the entire list of anniversary exercises. In order to be understood it will be necessary to refer to a similar meeting held two years ago for the same general purposes. At that time the office of President of the Society was held by Dr. H. W. Williams, one of the most prominent members of the profession in New England, a gentleman whose uniform suavity of manner and courtesy of bearing, combined with a dignified presence, concealed and masked a firmness of character and a pertinacity of disposition which in any other man would have seemed like obstinacy. On the occasion mentioned, in 1882, the subject of the eligibility of women for and their admission to the rights and privileges of the State Society was brought before the meeting. The same subject had been touched upon once or twice previously at the annual meetings of the Society, but had been easily disposed of on each occasion. The disorder had, however, become gradually more and more extended, and each year a larger number of members had become infected with heresy until now the movement had acquired a dangerous importance. At the annual meeting in 1882, the subject was therefore formally introduced and brought before the meeting for discussion. There was an evident feeling that the measure would be adopted by the Society, and the friends of the good old principles of the profession which have been fostered by the Society for more than a century trembled at the proximity of the ballot which they saw would demolish their idol of conservatism at one fell blow.

It was at this supreme moment that the then President of the Society, Dr. Williams, executed a stroke of genius in chairmanship which won for him the plaudits of the sympathizers and achieved again a victory for the conservative element of the Society. When the danger was most imminent, when the offensive doctrine had found shape and voice and had been presented to the meeting in the classical form of a motion, then the chairman ruled the motion out of order on the ground that by a strained reading of one clause of the By-laws of the Society, the Board of Councillors and the Society at large must conjointly ratify any amendment to the organic laws of the Society before these laws can be changed. By the reading of the clause in question, the chairman claimed that it appeared that the Councillors must take the iniation, and the society was powerless to originate a motion to amend its own By-laws; but was subject to the pleasure of a Board of Councillors which the Society had itself created. To the more ardent and impetuous members of the Society, especiall yamong the younger men, this step looked like an attempt to muzzle the Society, and to virtually establish a ring rule which would entirely subvert any voluntary expression or action on the part of the general Society. Some impulsive spirit ventured at this time to appeal from the decision of the chair, and after a spirited debate the decision of the chair on that occasion was sustained by a bare majority. This action placed the troublesome question of the admission of women at rest for the time being. Last year it showed but a slight degree of recuperation, but like Banquo's ghost it stalked into the meeting of this year in all its hideousness and would not be banished. The large attendance, the growing conviction that the threatened measure was sooner or later an inevitable issue, coupled with the fact that a certain amount of work had been done by a self-appointed committee looking to this object, all conspired to render the subject a more formidable one this year than ever before. As may be imagined, the friends and the enemies of the measure were present in full force.

The meeting had hardly been called to order and the records of the previous meeting been read, when the venerable Dr. Henry I. Bowditch arose, and in a clear, ringing voice, moved the proposed amendment to the By-laws of the Society, which reads as follows: "Candidates for admission to the Massachusetts Medical Society may be male or female, and must by proper credentials and examination satisfy the censors of said Society that they possess the following qualifications for fellowship" * * * etc.

The motion was seconded, and was ably advocated by its friends, and vigorously opposed by its foes, and finally the question was called for.

The President of the Society, Dr. A. Hosmer, immediately fell back upon the precedent established by his illustrious predecessor of two years ago, and promptly ruled the motion out of order. A scene of

wildest disorder at once ensued, in which the decision of the chair was appealed from in twenty directions at once, and speakers were vainly endeavoring to make themselves heard in all parts of the hall. Amid much confusion, a motion to reconsider the vote of two years ago was presented, and seconded and debated. The question was called for and was again summarily ruled to be out of order by the chairman. Again the decision of the chair was appealed from, and for a time it was quite impossible for the chairman to control the meeting.

At length, when quiet was in some degree restored, and the ridiculous position of affairs became apparent, there being two motions before the house, neither of which had been put, and two rulings of the chair, both of which had been appealed from, the chairman at length seemed to perceive that it was impossible to further prevent or pervert the natural course of events in parliamentary proceedings, and the questions were accordingly taken up *seriatim*. First, the appeal from the ruling of the chair that the motion of Dr. Bowditch was out of order, was decided by a large majority against the chairman. The original motion of Dr. Bowditch was again put, and declared lost. The vote was doubted, a standing vote was demanded, which gave a majority of about 75 for the amendment. A committee consisting of Dr. Henry I. Bowditch and Dr. Morrill Wyman was appointed to report the action of the general Society to the councillors at their meeting in the evening, and to move its passage in that body. Here, also, a last determined resistance was made to the passage of the vote, but after a lengthy debate it was adopted by the Council, and to-day for the first time in the history of the Massachusetts Medical Society, woman is accounted equally eligible with man for fellowship in its rights and its privileges.

On the following day, June 10, the annual reports of the Society were presented, the names of those removed by death, and of those added to the Society, were read, and the announcement was made that the membership was increased to about fifty more than its roll one year ago.

A paper was read by Dr. F. Nickerson, of Lowell, on "A Case of Chylous Deposit in the Abdomen." Dr. L. Huntress, of Lowell, read a paper on "The Pitch of Percussion Sounds," which was followed by a debate in which Drs. Henry I. Bowditch, G. M. Garland, and others, took part. Dr. J. F. A. Adams read an interesting essay on "Sanitary Forest-Culture," which was followed by an animated debate, in which Drs. H. O. Marcy, Albert N. Blodgett, and others, took part. At the conclusion of the discussion, the subject of forest-culture was referred to the Committee on Legislation of the Society, and by unanimous vote the name of Dr. Adams was added to that committee, which was instructed to endeavor by all proper means to secure such legislative enactments as may be necessary to check the wholesale destruction of the forests in our country, which will otherwise soon experience a famine of wood and lumber; and to call public attention to the sanitary influence of forest trees and timber lands upon the inhabitants. Dr. Blodgett called especial attention to the efforts made in foreign lands to cultivate forest trees and to reproduce timber in districts adapted to its culture, as well as the strict regulations observed in the destruction of forests or individual trees, even on private domain.

Dr. J. Seaverns, of Roxbury, then presented an essay on "Weight as an Indication of the Character of Risks for Life Insurance." This was a study of the mortality in a series of about 300 cases of death occurring in the membership of a coöperative Life Insurance Company, divided into groups varying in the ratio of 15 per cent. and 25 per cent. both above and below the normal standard from age and height, as established in the well-known mortality tables of the insurance companies.

At twelve o'clock the annual oration was delivered by Dr. John Crowell, of Haverhill, and at one o'clock the Society walked in procession by seniority to the skating rink, where the Annual Dinner was served.

After ample justice had been rendered to the repast, the Anniversary Chairman, Dr. Geo. B. Shattuck, arose, and in a few felicitous words introduced the President of the Society for the ensuing year, Dr. Chas. D. Homans, of Boston, who was greeted with cordial applause.

The retiring President was then called upon and spoke at some length of the history of the Society, its powerful influence for good, its endeavors to sustain the dignity and integrity of the profession, and its promises for the future.

The Governor of the Commonwealth, His Excellency, Hon. Geo. D. Robinson, was now introduced by the chairman, and for nearly half an hour held the Society spellbound by his eloquence. He touched upon many of the important relations which the profession of medicine maintains toward the public, the system of health inspection, the powers and province of State and local Boards of Health; the practical working of the system of Medical Examiners introduced some years ago; and suggestions for the future development and usefulness of this important department of public medicine. His Excellency could not refrain from congratulating the Society on its action of yesterday in admitting women to its fellowship, and expressed the opinion that the result to the public, to the profession, and to the women themselves would be only for good. Remarks were made by representatives of the sister professions, theology and the law, all uniting in congratulating the Society upon its increasing prosperity and the ever extending influence which it is gaining upon the public through its beneficent ministrations.

At about 4 o'clock the Society adjourned.

Looking back upon the anniversary just past, by far the most striking feature in its deliberations is the action by which the doors of the Society have been opened to women. This event will be looked upon by the friends of the measure as the beginning of a new epoch in the annals of the Society, and can be compared in magnitude only with another memorable action by the Society about fifteen years ago, when it expelled a portion of its body as unfit for longer membership on account of supposed inclina-

tions toward homœopathy. This measure engendered much rancor at the time both within and without the Society, and is now very generally regarded as a stupendous mistake. Whether in a few years the members of the Society will look back with similar misgivings on their action in regard to *women* is a question. From private sources it is learned that steps have been already taken by some of the women here engaged in practice, to obtain admission to the Society, but this consummation is still far from a reality at present on account of certain prohibitory enactments in the standing resolves of the Councillors, prohibiting their admission to examinations by the censors of the Society, one resolution even providing for the legal defence of the censors in case of judicial proceedings on account of a refusal to examine female candidates for fellowship. By what means or at what time these disabilities and restrictions will be removed by the Board of Councillors remains to be seen. The champions of the women feel that they have achieved a brilliant victory, and assert that the triumphant entrance of the gentler sex into the full membership of the Society will be speedily accomplished, while many grave and decorous physicians are hoping and praying (I think they pray) that the Councillors by their deliberate and conservative methods may still avert the dreaded amalgamation for some time yet.

Editor of Journal of the American Medical Association.

The following has already appeared in several American as well as European journals, and among the number may be mentioned the *Medical Press* and *Circular:*

Lack of Refinement in the American Medical Association.—A resident of Washington writes to the New York *Medical Journal* as follows: "The usual disgraceful performances took place at the receptions. Mrs. L—— generously opened her beautiful house, and provided as fine a table as Demenet could serve. She was rewarded by having men stalk in (hats on their heads) from the front room to the dining-room, where they fought like wolves for places at the tables, overturning piles of plates, breaking her expensive ornaments, and soiling her rugs with pools of tobacco-juice."

The author of this slander will, in all probability, never be known, excepting to the editor of the New York *Medical Journal*, who appears to have given it circulation without attaching the name of its puerile Washington correspondent.

I have the facts in my possession from the highest authority on this question that: "*The guests were most courteous and civil.*"

J. F. Jenkins, M.D.

Tecumseh, Mich., July 28, 1884.

Headache.—*Menthol.*—This drug has never failed to relieve my own headache, or any nervous headache in my care. I simply wet the finger with the following mixture, and pass it several times over the forehead: ℞. Menthol, ʒj; alcohol, ℥j; olei caryophylli, olei cinnam., āā ♏xx. M. (Dr. F. O. Lockwood, Therapeutic, Gazette, Oct., 1883.)

MISCELLANEOUS.

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According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

Richard J. Dunglison, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

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Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department United States Army, from July 19, 1884, to July 25, 1884.

Wright, J. P., Major and Surgeon, assigned to duty as Post Surgeon, San Antonio, Texas. (By per. 4 S. O. 87, Hdqrs. D. of Texas, July 14, '84).

Wright, J. P., Major and Surgeon, granted leave of absence for one month, on surgeon's certificate of disability. (Par. 3 S. O. 89, Hdqrs. D. of Texas, July 17, '84).

Hartsuff, Albert, Major and Surgeon, leave of absence extended one month. (5. O. 79, Hdqrs. Div. of the Mo., July 18, '84.

Strong, Norton, 1st. Lieut. and Asst. Surgeon, granted leave of absence for two months, to take effect when relieved from duty in Dept. of the Platte. (Par. 2 S. O. 68, Hdqrs. Div. of the Mo., June 27, '84.)

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ORIGINAL ARTICLES.

ON THE CLINICAL STUDY OF EPILEPSY.

BY WM. PEPPER, M.D., OF PHILADELPHIA, PA.

Read in the Section on Practice of Medicine and Materia Medica of the American Medical Association, May, 1884.

MR. CHAIRMAN:—When the eminent President of this Association, seconded by yourself, asked me to prepare some remarks for opening a discussion before the Section on Medicine, I felt that the desire was not so much that I should give a formal paper, as it was that I should bring before the body some subject of general interest, and one in which all could take part.

The subject of chronic convulsive affections, grouped under the name of epilepsy, is one of such large medical and social importance, that I felt that I could not do better than select it, large and vague as it is. In what I say, I shall simply bring before the Section the notes of a few cases from my case books, and make them the subject of brief practical comments as I pass along.

The conception that I think we must form of epilepsy, is a very broad one. For studying the disease to the best advantage, if we could entirely exclude cases where any anatomical change has occurred, it were desirable. While it is perfectly possible to do this in cases where definite symptoms of cerebral tumor are associated with convulsions, and where we recognize that the attacks are purely symptomatic, there are many cases which we have to call epilepsy, where doubtless there are minute changes in the meninges or in the motor centres of the cortex, undistinguished by other symptoms. Prominent among these are the cases of epilepsy following sunstroke, of which I shall give illustrations later.

But there may be difficulty, even when a distinct history of traumatism exists, and unquestionably, if autopsies could be secured in every instance, it would be found that all collected series of cases of epilepsy which have served as the basis of statistical calculation, contain many cases of purely symptomatic epileptiform character. The following is quoted, partly as an illustration of these remarks:

CASE I.—*Epileptic Attacks following Injury to Head, Recurring after long Interval of Immunity. Abscess in Anterior Lobe of each Hemisphere.*

Dr. O. A. R., age 44 at the time of his death; married; excellent habits, and without hereditary predisposition. At the age of 23 was thrown out of his wagon, striking his head against a tree, producing a depression of the frontal bone to the right of the median line, over the frontal sinus. He had convulsions at the time, but recovered perfectly, continued his practice successfully and served as an army surgeon very creditably, and had no convulsions, nor any cerebral symptoms whatever, for 18 years, until August, 1881, after which time he had severe convulsions at intervals from four to six weeks. There was no albuminuria. No cardiac disease. No symptoms of pressure, nor any sensations referred to the spot of injury. The recurrence of the convulsions seemed to be connected with sustained mental anxiety and worry and the effects of continued hard work, as he had no vacation for 16 years. Ophthalmoscopic examination gave negative results. Bromides failed to influence the spells. The actual cautery was applied to the neck, and a strict diet was ordered, with cessation from work. There was marked temporary improvement, the intervals between the attacks being increased to six months. He then became so much better that he insisted upon resuming practice, when immediately violent convulsions occurred, which were uninfluenced by any measure. Trephining was at last performed by Dr. Agnew at my request, when slight depression of the internal table, with a fissure and displacement inward of a minute spicula of bone were found, with an old abscess of considerable size in the anterior lobe of the right hemisphere, and a small abscess in the anterior lobe of the left side. There can be little doubt that a slow irritative lesion had existed all these years, and the brain became habituated to its presence, and it was not until a large area and overwork established convulsions, which thenceforth were uncontrollable.

Equally difficult and yet important is it to recognize and eliminate all instances of hysteria. In typical cases of hystero-epilepsy, such as the following, this is readily done.

CASE II.—*Hystero-Epilepsy, Consequent on Membranous Enteritis.*

Mrs. McC., age 30. Several of her family have presented nervous symptoms, neurasthenia, etc. She herself was in perfect health until, after over-exertion nursing a relative, she was seized with severe dysentery, which passed into a subacute form and has been followed by membranous enteritis, continuing now for more than eight years. The membranous formations are peculiarly numerous, long, thick and firm.

Gradually a condition of marked neurasthenia developed, with excessive mobility of the system, and in the course of two years decided hysterical tendency showed itself. She became easily moved to tears, although her usual state remains one of great animation and cheerfulness. Excessive spinal tenderness was developed and, indeed, the entire body has become morbidly sensitive. Attacks of hystero-epilepsy first appeared five years ago, and still continue, though less frequent and severe than formerly. They are very characteristic and interesting, and can be induced at will by pressure on the spine or over the ovaries; also by fatigue or excitement, and are most common at the menstrual period. Ovarian compression will not check them. There is no erotic manifestation. Her character remains frank, generous, self-sacrificing and courageous. General nutrition has been well preserved. Menstruation is regular, but scanty and somewhat difficult. Obstinate constipation, connected with atony of the lower bowel, is a chronic condition. Prior to the passage of a membrane the general hyperæsthesia is exaggerated, great abdominal distress exists, and crops of from four to twelve dark-bluish stigmata appear on different parts of the body, chiefly on the legs and thighs. These spots look like bruises, are often a half inch in diameter, and persist for five to twenty days, gradually fading and changing color as when a bruise is passing away. At such times the convulsive attacks are frequent. Bromide has done no good. No remedy, either by the mouth or rectum, has cured the membranous formations. Repeated application of the actual cautery at different parts of the body has been made, and each time with marked and somewhat enduring good results; and repeated changes of scene, and wholesome, cheerful influences, have had an excellent effect.

Contrary to the teachings of Charcot, my own experience would be that in the cases of hystero-epilepsy seen in this country, compression of the ovaries does not arrest the attack, nor are erotic manifestations prominent. In this respect the disease as it occurs in this country and in England, is in marked contrast with the disease as it is said to occur in France, particularly in hospital patients.

While such cases as the above are easily distinguished, there are many others where the convulsions occur in such manner, and exhibit such coördinated movements, as to render it difficult to say whether they are hysterical or epileptic. Indeed, I think that it must be conceded that there are cases of epilepsy and hysteria combined. In both of these affections, we must undoubtedly recognize some rooted morbid sensibility and instability of nerve-tissue, probably distinct in its seat in these two affections. In epilepsy it would seem that there is a supremely unstable condition of one or more areas, minute or extensive, of the gray matter within the encephalon, rendering it liable to sudden and violent discharges which it may possibly be that in hysteria, in hystero-epilepsy and in the combined forms to which I have alluded, it is the ganglionic nerve centres which are in this unstable condition. Instability of the encephalic gray matter may co-exist, so that an attack may be induced through violent disturbance of the ganglia controlling intracranial circulation, with consequent discharge from an unstable centre in cortex or elsewhere.

Without entering farther on this abstruse question, the nervous instability which must be recognized as the fundamental element, is brought about in various ways. The influence of heredity is so well known that no further allusion to it is necessary. The effects of nervous exhaustion as from overgrowth, over-strain or exhausting illness has long been recognized. The exhaustion which follows typhoid fever, furnishes a good example of the influence of this factor, as in the following case:

CASE III.—*Epilepsy following Typhoid Fever.*

Mrs. B., age 38, had been in good health until five years ago when she had a very severe attack of typhoid fever. This was complicated with hemorrhages, phlegmasia alba dolens of both legs, and a relapse of the fever kept her in bed four months. On the first occasion of going out to walk after the fever she fell in severe convulsions of epileptic character, with tongue biting. This was the first convulsion she had presented. For three years subsequently, convulsions of an epileptic character continued to recur at varying intervals, sometimes as frequent as twice a week and of severe and typical character. They were often induced by exertion in the sunlight or by sudden exposure to very bright light. Gradually, as her health improved, the attacks became less severe and less frequent. For the last twelve months she has had no general convulsions but has merely had minor attacks with momentary unconsciousness preceded by sharp praecordial pain; at increasingly long intervals.

In the same way epilepsy frequently developes after scarlet fever, but in reference to the relation of epilepsy and scarlet fever, I shall speak more fully, later. Shock to the nervous system, whether this be purely psychical, as from fright; or whether it be from such influences as exposure to the violent action of the sun; or, whether it has been connected with an actual injury, with or without distinct lesion of the cranial bones, frequently appears as the exciting cause of the disease. I have already alluded to the great frequency with which heat-exhaustion, or actual sun-stroke, figures in this relation, and the following case is quoted partly to illustrate this, and partly with reference to certain points of treatment.

CASE IV. Mr. G. W. W. His mother has borne a number of healthy children, but is herself, at the menopause, highly anæmic and neurasthenic with tendency to asthma. He is 29 years old, and has been subject to severe sick headaches from boyhood. Four years ago, while working on a raft, was overcome by the heat and was attacked with violent headache and nausea, loss of consciousness and afterwards had fever with delirium. His general health was much impaired, and in addition during the next eighteen months, he had six severe attacks and a number of minor attacks. The severe attacks began with convulsive pain in the left side of the head, about the left mastoid region, increasing in intensity

until it became unindurable in from two to five minutes, and he then became unconscious. In the minor attacks the pain would be on the right side of the head and around the right eye, and increase until he goes into a stupor and becomes almost, if not quite, unconscious, and afterwards passes into a heavy sleep for hours. The severe attacks are preceded by confusion of vision, objects look blurred, move and close in upon him until all gets dark. This takes twelve or fifteen minutes, then the speech becomes affected; he thinks of objects he wishes to mention, but calls them by the wrong name, this increases until he cannot speak at all, though his tongue is not paralyzed. These changes are going on during the latter part of the vision changes, and reach their height about the same time, and then a numbness or tingling begins in the left biceps extending down to the hand and left side to the foot. The left side feels cold and numb and tingles, and he then loses power of moving left arm or leg, though he can still move right members freely. This is the last he remembers. He is usually able to reach some place to lie down. After this there are convulsive movements with tongue biting, and very excited action of the heart. The urine is normal. No cardiac murmur, but heart's action easily excited.

When I first saw him in 1882, there was marked tenderness over the left suboccipital nerve behind the mastoid process where the pains begin at the attack.

There has been great excess in sexual intercourse, which had probably aided in producing his constitutional susceptibility. Bromides and repeated blisters failed to produce marked effect. The actual cautery was applied February 8, 1882, and the effect of this, with care in diet and avoidance of severe exercise or much exposure to the sun, were followed by immunity until the summer of 1883, when he began to expose himself too much and to have headache; and in September, while driving in the hot sun, he had an attack beginning with flashes of light, sense of surrounding objects drawing in on him, though he was able to guide his horse home and reached his room, where he broke three capsules of nitrite of amyl, which did not prevent the attack from going on to complete unconsciousness and convulsions, followed by stupor for three hours.

Renewed application of cautery was again made, and restriction of habits has been insisted upon, and he is again improving. The beneficial effects of the cautery, and avoidance of exertion, was very marked here for many months, in the absence of both minor and major attacks, as well as of headache and uncomfortable sensations about the head.

Again, instability of the circulation with associated disturbance of the nutrition of the brain, as in heart disease, anæmia, etc. plays an important part as a predisposing cause in many cases. And I would call especial attention to the remarkable frequency with which careful physical examination will show the existence of organic cardiac disease in cases of epilepsy. In this connection allusion is also to be made to the possibility of minute capillary embolisms and interference with the nutrition of small areas of the brain in cases of valvular disease of the heart. Prolonged peripheral irritation may gradually bring about this instability and establish the habit of convulsive seizures. This peripheral irritation may be from prolonged morbid dentition, from severe and protracted genital irritation, or from long continued gastro-intestinal irritation, especially in the form of chronic catarrhal irritation of the mucous membrane with the resulting anæmia and malnutrition.

Such general considerations help us to realize the condition of those whom we group under the name of epileptics, and I think show us that they are not affected by a single definite disease, presenting a vast variety of type and severity, but that they exhibit in common, merely a state of impaired nutrition and of morbid instability of the gray matter within the encephalon, however induced or maintained and varying in degree to an immense extent in different cases, and thus rendering them liable to explosive discharges or convulsions upon provocations of correspondingly varying intensity. There are in all probability cases where progressive minute molecular changes in the nervous tissue induce the outbreaks at certain irregular periods. Such may be the cases of recurring status epilepticus with elevated temperature, and followed each time by evidences of advancing deterioration and also such cases as exhibit distinct progressive impairment of cerebral function. Such convulsions may then be as truly symptomatic as in the case of intracranial tumor. But far more commonly the irregularly recurring convulsions are connected with not an advancing morbid tendency, nor an irregularly progressive anatomical change, but with the occasional and irregular operation of those widely different causes which in different cases are calculated to disturb the weak centre and induce the explosive discharge. Unquestionably, it is true that the evil effects of habit are seen here as prominently as in other chronic conditions, and if the tendency or instability can not be reduced and the provoking causes be avoided, then the mere continuance of the attacks induced by such provocations will develope a more and more facile response on the part of the weak centres until at last attacks may be induced by almost imperceptible causes.

It is important to recognize the degree of this instability in each case, and to recognize that we are not dealing with a radical morbid condition, but merely with an exaggeration of the normal condition. Every one is liable to convulsions: it is merely a question of the provoking cause required. Take the following case of single convulsive seizure in an adult consequent upon intense dental irritation:

Case V.—*Single convulsion, induced by intense pain.*

Mr. — 25 years old, with gouty diathesis, plethoric and somewhat intemperate in habits. Was seen in 1879, after he had a violent convulsion with tongue biting, followed by confusion of mind for several hours. It had been preceded by violent toothache lasting 36 hours, preventing sleep or eating, and finally becoming so severe that he felt he was losing his self-control, which is the last he can recollect. No subsequent spell has occurred.

Or the following case where alcoholic excesses induced the convulsions:

CASE VI.—*Epileptic convulsions apparently induced by Alcohol.*

W. J. F., age 45, had drank whiskey to excess and used tobacco to excess. Had primary syphilis 25 years ago followed by no constitutional symptoms. His general health was excellent until 5 years ago when he began to have attacks of acute dyspepsia following his hard drinking. Hemorrhoids ensued which were operated upon, and five weeks afterwards he had epileptic convulsions occurring in one of his attacks of dyspepsia. He had four more epileptic convulsions in the next two years, always occurring immediately after an attack of acute dyspepsia. Two and a half years ago he fell down stairs in an epileptic fit, and on recovering consciousness had complete loss of motion and sensation in the legs, following the blow upon the lumbar region. There has been a gradual return of power, though not complete. Since then he has stopped drinking to a great extent and has no more dyspepsia and no return of epileptic fits.

At the other extreme, we see cases where the tendency is so great that a sudden noise or a slight indiscretion in diet will induce severe attacks. It is not pretended that in all cases of epilepsy such provoking causes of the attack can be detected, but merely to bring into prominence the fact that the more closely we seek, the more frequently we shall find them, and that the avoidance of the attack is so important, and the recognition of the cause so valuable as a guide to restorative and preventive treatment, that a most critical and prolonged study in this direction is required in every case.

Turning now to the character of such provoking causes, I should mention as among the most frequent in my observation, first, indiscretions in diet, or improper food. I have already stated that this cause seems frequently to develop the tendency to the disease by impairing nutrition and inducing instability of nerve tissue, but also when such instability exists it very often serves to provoke the attacks. It may excite them by causing increased local irritation of the mucous membrane which will act in a reflex manner, or it has often seemed to me that it acts in some cases by inducing a condition of toxæmia from the admission into the blood of elements imperfectly elaborated, or from the failure of the emunctories to remove some product of malassimilation.

We are becoming more familiar with the wide range of symptoms, largely nervous in type, associated with the condition inadequately named lithæmia. In a considerable number of my epileptic patients it has seemed to me that their attacks bore a close analogy to the attacks of vertigo, for instance such as we see induced in lithæmic patients by indiscretions in diet. I believe it is difficult to lay too much stress upon the part which disorders of assimilation and nutrition, and the derangements of the associated functions of the great abdominal organs, stomach, liver and kidneys, play in the production of instability of nervous centres and the varied demonstrations or phenomena of such disorders as epilepsy and hysteria.

In this connection, it is interesting to again revert to the frequency with which scarlatina seems to have a causal connection with epilepsy. This may be explained in some cases by the tendency to wide spread tissue-change in this disease so that impaired nutrition of the gray nervous matter might be expected sometimes to occur. But it seems to me probable that in many other cases it may act by leaving such a degree of renal insufficiency as will under comparatively slight causes lead to toxæmia, due to the retention of malassimilated materials. It does not seem necessary that such a condition should reveal itself by the presence of albumen in the urine, although the statement of Huppert (Archiv für Psychiatrie, 1877, p. 189) that immediately after epileptic attacks albuminuria is almost invariably present and hyaline tubecasts can frequently be found, (while certainly exaggerated and not fully confirmed by subsequent investigators), calls attention to this interesting question. The cases of epileptic convulsions to which I especially refer, are those where previous to the seizure some derangements of digestion or secretion make themselves evident for a short time. Failure, impairment, or alteration of appetite, dullness, languor, with heavy aching sensations through the limbs; changes in the appearance with heaviness of expression, coating of the tongue and foul breath; constipation with alterations in the appearance of the urine, this and other similar premonitory symptoms will be found of frequent occurrence if carefully inquired after, and point in the direction of what I have been saying.

Among other provoking causes are excessive excitement; sexual excesses, inducing exhaustion; alcoholic excesses; great intellectual exertions, especially if associated with the excitement of competition; and excessive muscular exertion. A single severe muscular effort may suffice to induce the attack (see case 10). The importance of this is especially marked in cases where there is cardiac weakness. In the following case, where I could detect no disturbance of the heart's action, fatigue induced by muscular effort certainly increased the attacks of petit mal.

CASE VII.—Marion S., age 22, no hereditary tendency, began at the age of 19 after a course of excessive study at college combined with injudicious habits of life, to have characteristic minor attacks marked by palor and brief but complete loss of consciousness. She was a girl of strong will without the slightest hysterical tendency. No cardiac lesion or albuminuria. Attacks recurred at irregular intervals and close study revealed that they were apt to occur in connection with menstruation or to follow decided muscular exertion, for instance when driving her horse became startled, and while she was not at all alarmed it was necessary to use powerful exertion to control the animal. Following this there was a series of minor attacks at short intervals. Rest in bed for several weeks with gradual return to exercise but with complete rest at the menstrual period, carefully regulated diet and dialyzed iron in ascending doses broke up the spells which have now been absent for more than two years.

In those cases in which the morbid state of the

nervous system has been brought about by sunstroke, the attacks will often be induced by exposure to excessive heat, or to intense light. Of course, all these causes become operative on account of the morbid sensibility and instability of the nervous tissues.

It is often said that many epileptics are in full health. This certainly does not coincide with my own observations. Rarely has it failed to be the case that a critical study has not revealed either some organic trouble or some marked functional disorder. We do not speak of a lithæmic patient who has vertigo or other lithæmic symptoms on trifling indiscretions as being in perfect health.

The principles of rational treatment would seem to follow from a consideration of the points to which I have briefly referred. In no disease is routine treatment less permissible, and in no disease is attention to hygiene and general influences more essential. In each case the treatment should be adapted to the special peculiarity, to the character of the primary cause, if such can be discovered, and to the character of the provoking cause if it can be detected. Among the general principles which could be dwelt upon, I shall briefly allude to the importance of relieving anæmia and neuræthenia and the morbid susceptibility by diet, by change of occupation and residence, and by rest. I would dwell upon the special value of prolonged rest in certain cases, which in my own experience have been chiefly met with among growing children. As for instance in this case :

Case VIII.—*Epilepsy apparently cured by prolonged rest, careful diet, with small doses of bromides.*

F. S., age 15, a boy of unusual intellectual powers, and very ambitious. He had convulsions while teething and at the beginning of scarlatina, at 3 years of age. Healthy until 8, when epileptic attacks made their appearance, and proved obstinate, yielding only when he was removed from school and sent to a farm, and kept under the influence of small doses of bromide. He was then allowed to return to school, but after again devoting himself to his studies minor attacks began, and they were soon followed by frequently returning nocturnal severe attacks. These recurred with increased frequency. They were not controlled by bromides. The urine contained neither albumen nor sugar ; no cardiac lesion. Appetite was good, but previous to this last outbreak of the attacks and during it, he had too frequent movements of the bowels—not actual looseness, but two or more occurring in the day, and usually with some little mucus. The minor spells occurred during the day, the severe convulsions in the night or early morning, and finally by February 1, 1883, more than one occurred in a single night. Congenital phymosis existed, but as no irritation appeared it was allowed to remain, He was then put to bed and kept there constantly, with very carefully regulated diet, 10 grains of bromide of potassium and 2 grains of quinine twice daily, substituted later by cod liver oil. He remained in bed strictly for two months and a half, during which time his attacks, both major and minor, ceased entirely. He grew and gained weight while in bed. The disposition to looseness was controlled entirely by diet. The bromide was suspended, cod liver oil continued. He was then cautiously allowed to rise for a short time each day, and gradually increased until he returned to his ordinary mode of life. There has been no relapse in fifteen months, and a cure is apparently complete.

It is especially in these cases where there is anæmia, defective nutrition, and neurasthenia, that cod liver oil, iron, strychnia, arsenic, and quinine have proved so valuable.

Gastro-intestinal irritation should be relieved. Possibly this is more especially applicable to cases where the aura is in the pneumogastric area, although it is applicable where the aura is absent or is in the course of other nerves. It is certainly applicable in cases of gastro-intestinal catarrh. In some of these cases, extreme benefit will be obtained from an absolute milk diet. The following case is of great interest in illustration of this statement :

Case IX.—Charles Wilkinson, family not strong ; disposed to be anæmic and somewhat nervous. One sister had marked anæmia ; a brother had incipient phthisis of right apex, cured by long treatment and change of climate, and his father suffered a great deal from gastric trouble. Charles is now 19 years old, and was apprenticed to a plumber at 16½, when he seemed very well. He worked hard, and when two years older he had a severe pain in the back, which was either rheumatic or spinal, probable the former, and was treated under the name of meningitis, and was confined to bed for five or six weeks, and did not recover entirely until he came under my care. This trouble in the back seemed to be lumbago ; it was in the lumbar region, and affected him so that when he was in a sitting position he could scarcely rise, but after he had walked a little he grew easier. There was no vomiting. He ate rapidly and heartily. The pain in back began quite severely, though he kept about for two or three weeks. Then, when at work on a roof, in March, 1881, he was seized with such intense pain in the back that he had to be helped off the roof, and was brought home and put to bed. While in bed, two or three weeks later, he had his first epileptic fit (the first one followed administration of a dose of oil, and was more like a syncopal attack). Then he had for at least three months (every day, or at most every third day) similar spells of sudden unconsciousness, eyes fixed and staring, no convulsive movements—lasting a few moments or two or three hours as though dead—occurring by day or by night. Face pale, but not as in a faint. Breathing very gentle during attack, and as he came out of it, very deep and heavy. He would have no consciousness of it afterwards. When they came on he would say, "I am sick ; I am sick," and then go off into unconsciousness. Towards end of the two months these spells grew more frequent, even several in a day, always the same. When suddenly while lying in bed, to which he was confined then from pain in the back (lumbago?), he was seized with a fully developed violent epileptic attack (no apparent cause, and no excitement).

He was then using bromide of potass. and bell., and had eaten that day two bananas. [It is to be noted

that there was no vomiting, but his tongue was coated. He often complained of being sick all over. Appetite poor, flatulent, constipation, for which purgatives were given (senna and prunes), and the attacks were always preceded for an hour or so by great distress in the stomach. The stools contained mucus, jelly-like, greenish.]

After this he continued to have violent epileptic attacks every few days, until by September 1, 1881, they were two or three times a week. In the intervals he would have the peculiar petit mal as above described. The spells were all complete. He would feel they were coming—not always, for he had them during night in sleep—pain in stomach, like a cramp; often sudden flatulence, the stomach swelling up in two or three minutes. He would fall if not caught. Convulsions very long and severe, followed by stupor; frothed at the mouth; never bit his tongue; had no consciousness or recollection of the attack. Treatment by large doses of bromides and laxatives continued. He gradually got better of pain in back, and in course of ten or twelve weeks from the beginning he could leave bed, though he did not walk out before August, and then always with a companion.

I saw him in September, when he was looking poorly—pale, thin, and anæmic. Marked gastric irritability; connection of attacks with gastric disorder suggested itself prominently. He was then having his attacks very frequently, nearly every night just after falling asleep, and not rarely, also, one or two during day.

He was ordered strict milk diet, ℥iss every two hours, gradually increasing to two quarts. This was continued for three months; not a crumb of bread during this time. Nitrate of silver and opium, inunction, twice daily; also nitrite of amyl, which stopped the attacks, if there was a chance of using it. The attacks continued for three months, growing less and less severe and frequent, and then stopped, and he had none for nearly a year. He regained his health; was able to return to work. Subsequently he has had six or eight attacks at long intervals, when careless in diet or when he overworks.

No bromide at all was used. On one occasion he had two or three attacks at shorter intervals, and I confined him again to milk and gave him a course of silver, after which he had no spell for a long time.

No treatment now for a year; no spell during that time, except once after mental worry he had a slight attack.

CASE X.—B. F., age 11. His father was of a highly nervous temperament, and had one uncle an epileptic, who died aged 38, of rapid phthisis. The maternal grandmother had heart disease, and for 20 years before her death had convulsions frequently, about once in two weeks. One grand-aunt had paralysis. His mother had two sisters, both of whom died with kidney disease with frequently recurring convulsions. One cousin had convulsions. While his mother was pregnant, she was much worried about her mother, who was then having convulsions, and died three months before the patient was born. He had distinct carpo-pedal contractions with fever when teething. His stomach was always very sensitive, and the least excess excited fever. At such times, curious spells of rapid, sighing breathing would occur, and would recur until an emetic was administered, after which they would promptly cease. In August, 1880, when seven years old, he fell from the second story, striking his head upon two nails projecting from the wall and then striking the floor, but not losing consciousness. Soon after this, he began to complain of minor attacks, consisting of transient rapid vibration of the tongue, which he called "quivering," without loss of consciousness. I saw him first in October, 1881, and detected organic mitral insufficiency. He had been cutting teeth recently, and the minor attacks had been more frequent. His first severe convulsion occurred in November, 1881, connected with dental irritation. Bromides were given in small doses, extreme care was used in diet, and no convulsions occurred until the following summer, when dental irritations about the incisor teeth presented themselves, and quivering attacks began at once, occurring frequently; and he soon had two severe convulsions. After dentition was established, his attacks became much better, but in September, 1882, in spite of bromides in large doses, minor and major attacks recurred. I then found tightly adherent prepuce, with much irritation. This was separated, and the attacks again ceased, although bromide was now abandoned, as it had failed to control attacks. There was now a period of immunity for a number of months, during which time excessively careful diet was used, and, whenever there was evidence of irritation of the system, chloral enemas.

Since then there have been several outbreaks, the minor attacks of quivering growing frequent, and full convulsions occurring at short intervals. On one occasion, such a state was directly induced by violent straining muscular effort trying to lift a heavy weight, which brought on severe cardiac disturbance. Strict rest in bed, digitalis and very careful diet, with a few chloral enemas, broke this up. On several other occasions, the development of these periods of activity has been preceded for a few days by evident disorder of assimilation, the complexion growing thick, dark rings under the eyes, breath heavy, stools less natural. Under such circumstances, neither bromide or chloral enemas have stopped the convulsions. An emetic of ipecac in warm water, with very rigid diet and almost complete rest, have broken up the spells, and have secured immunity for a number of months. In this way, there has been a great improvement during the past 18 months without any bromide, and with the use of only occasional chloral enemas. Moderate study with a tutor has been permitted. The boy is developing finely, physically and mentally. The organic heart disease remains the same. The attempt has been made to arrest the quivering by a clamp which he carries to apply to the tongue, but without definite results. Nitrite of amyl always succeeds when opportunity is given. Bromides in any form, even in small doses, have lately seemed to disturb digestion, and do more harm than good.

It seems that it is in these cases, where the connection between the gastro-intestinal mucous membrane and the nervous system is so prominently marked,

that nitrate of silver is especially useful, either with or without the conjoined use of the bromides. I would also call attention to the importance of the occasional use of emetics in cases where the occurrence of attacks is accompanied by evidences of increased gastric disturbance. It has happened in my experience that, when spells of unusual severity were occurring with unusual frequency, despite the use of various anticonvulsives in full doses, the use of an emetic has been followed by an abrupt cessation of the attacks, and by immunity for a considerable period. (See case X.)

Over-exertion should be avoided in all cases, and especially in cardiac cases as will be seen from several cases which I have reported. It is in these cardiac cases that digitalis seems to be of value. Excitement, over-work and excessive study is to be avoided. Study in private should be preferred.

Counter-irritation and the removal of local irritation. In the first place I should allude to the value of the actual cautery, especially when intra-cranial irritation is suspected, as after sunstroke and after injury without demonstrable lesion, and even in organic cases, although we cannot think that the actual cautery could influence the gross cerebral lesions, yet its effect on the nervous system is sometimes such as to secure immunity for a considerable period.

Trephining. It is my conviction that this operation is not performed often enough for epilepsy. We may ask ourselves if it would not be proper to do the operation when the position of the discharging centre can be located by the aura, the character of the convulsions or from a history of an injury, even though no positive lesion of the cranium exists? When there is a demonstrable lesion, it should be performed.

Adhesions of the prepuce are to be broken up by dilatation, and the redundant prepuce is to be removed by circumcision, although from my own experience, I should say that the importance of this has been greatly over-estimated.

Lastly, the arrest of the attacks. Ligature and nitrite of amyl are useful in preventing individual attacks and in checking the formation of a habit. I have purposely confined myself to these general measures, omitting any reference to the drugs usually employed, notably the bromides. I have done this not because I fail to appreciate the enormous value of the bromides in epilepsy, or the fact that the discovery of the anti-convulsive powers of these agents has actually modified the whole question of prognosis in epilepsy, and rendered the disease more manageable than it formerly was, but because I think that there is reason to believe that the profession has drifted too much into depending upon the bromides, prescribing them in every case without studying the individual peculiarities sufficiently, and as a moderate dose fails, to increase it and continue it for a long time, until this course finally produces results injurious in themselves, and calculated to hinder the restoration of nervous power and the removal of the fundamental condition of nervous susceptibility and instability upon which the disease essentially depends.

Bromides do not cure epilepsy, except in rare instances. More frequently they control the disease, sometimes indefinitely, but more commonly losing their effect gradually, and this is the worst feature about them. In other cases, they fail to control the convulsions, and there are a few cases where the bromides have seemed to be actually injurious by depressing the digestive power, if they did not actually cause gastro-intestinal irritation. I shall not discuss the selection of the special form of bromides or any particular method of administration. The bromide of potassium has seemed to be the most valuable. Occasionally, it has been desirable to substitute this or combine it with some of the other bromides. As to the mode of administration; they should be given at first in minimum doses, and no more than is sufficient to control the convulsions should be administered. In many cases, I have found it necessary, after using the bromides, to either abandon or modify the treatment, and I have concluded that far more value is to be attached to hygiene, diet, and the more general remedies, than is to be attached to the bromides.

In like manner, I shall not attempt to allude to the other drugs, such as belladonna and other antispasmodics, which have been recommended, but will close with a brief allusion to the effect of enemas of hydrate of chloral, as having given good results in some cases where the bromides have failed. Often far better results are secured from enemas of chloral, than can be obtained from the administration of the remedy by the mouth. This method is of particular service where the administration of the bromides and chloral by the mouth seem to be disadvantageous on account of their tendency to disorder the stomach and digestion.

DISCUSSION.

Dr. Austin Flint, Sr., of New York, opened the discussion on the subject of Dr. Pepper's paper as follows:

An argument for the toxical pathology of epilepsy is not, as it seems to me, out of place in a discussion of that affection from the standpoint of the medical practitioner, inasmuch as our inquiries with regard to the prevention and treatment of diseases must, in a great measure, receive their direction from pathological views.

By the phrase "toxical pathology," I mean to express the doctrine that the manifestations of epilepsy depend on a toxical agent of some kind, produced somewhere within the body.

The first point in the argument is the absence of any generally received or satisfactory pathological doctrine. I assume, as a postulate, that epilepsy has no established anatomical characteristics. It may be associated with different lesions, and in a certain proportion of cases no lesions are discoverable. A rational inference from these facts is that different associated lesions, when present, have only an incidental pathological connection with the disease, if the connection be not purely accidental, and that the disease is essentially one of the neuroses. It may also be assumed that the manifestations of the disease generally occur without being preceded or accompanied by any apparent morbid conditions which may

be supposed to be causative. As a rule, epileptic manifestations have no distinct premonitions. They occur wholly irrespective of any causative agency from without. The varied sensations which have been described under the name *aura epileptica* are in most instances wanting, and the diversity in their character divests them of any special pathological significance. Pathological explanations such as are expressed by the terms "discharging lesions," (Hughlings Jackson) and "excitability," (Brown-Séquard) are not only purely hypothetical, but they convey nothing clearly explanatory. It may be said of the etiology, as well as of the pathology, that there are no obstacles to be removed in order to make way for a new doctrine.

The second point in the argument is the analogy between the phenomena of epilepsy and those known to be produced by toxical agents. The closest analogy exists between epileptic paroxysms and uræmic coma with convulsions. No one at the present day, doubts that the coma and convulsions referable to renal disease, are caused by retained urinary principles. Yet, within my recollection, uræmia not being recognized as a morbid condition, the coma and convulsions dependent thereon, were as indeterminate in respect of their pathology and causation as are the phenomena of an epileptic paroxysm at the present day. An attack of uræmic coma and convulsions may simulate a paroxysm of epilepsy so closely that the latter could not be discriminated from the former without the information to be obtained from an analysis of the urine. I have known several attacks of uræmic coma and convulsions to have occurred, and been considered to be paroxysms of epilepsy. On the other hand, in some cases of epilepsy in which the paroxysms recur after short intervals during many hours and even days, there is so close a simulation of uræmia that an examination of the urine is essential for the discrimination. Reasoning on the principle of like effects being referable to like causes, I submit as a reasonable conclusion that the pathology of epilepsy, in the same sense as the pathology of uræmia, is toxical.

As a fourth point in the argument, certain facts pertaining to the clinical history are more rationally accounted for on the supposition of a toxical causative agent, than by any other explanation. The facts referred to are, 1st. The absence of any definite ailments prior to the occurrence of an epileptic paroxysm, there having been no ailments, or those which may have existed being of an indefinite character expressed by the term *malaise*. This fact is alike applicable to certain cases of uræmic coma and convulsions. 2nd. The short duration of the epileptic paroxysm. 3rd. The immediate recovery in many instances of the general condition of health which existed prior to the paroxysm, and not infrequently a feeling of improved health. These facts are more consistent with the supposition that the epileptic paroxysm is due to the transient accumulation of a toxical agent, than with any other pathological consideration which may be supposed to exist. It is to be remarked, however, that the toxical pathology by no means excludes the probability that certain local morbid conditions are more or less important, and may be essential, or auxiliary, constituting a susceptibility to the action of the toxical agent.

As a fifth point in the argument, facts pertaining to therapeutics uphold the toxical pathology. Nothnagel in his treatise on epilepsy, opens up the consideration of the treatment in these words: "Small indeed is the actual encouragement derived from looking through those chapters of medical literature, from the oldest to the most recent times, which refer to the treatment of epilepsy. The methods and the remedies change; but the final result always remains the same beggarly one[1]." I presume no one will deny that this statement expresses truthfully the actual state of our present knowledge of the therapeutics of epilepsy. From this statement it may be inferred that up to the present time pathological views have failed in giving a successful direction to therapeutical observations. Of the remedies which within late years have been found to have a certain amount of influence over the disease, namely, the preparations of zinc, belladonna and the bromine salts, the most rational explanation is that they enable the nervous system to tolerate, to a greater or less extent, the toxical agent on which depend the manifestations of the disease.

It is needless to say that in this brief paper I have merely touched upon the general points in the argument for the toxical pathology of epilepsy, and I have omitted points which might be adduced. The limitation as to time (10 minutes) has prevented a fuller consideration of the subject. Accepting the toxical pathology of the disease, the pathological inquiries to which it gives rise are, what is the *modus operandi* of the toxical agent, what is its nature, whence is its source, and what is the mode of its production?

The questions which relate to the practical applications of the doctrine are, how can the production of the toxical agent be prevented, how can its morbific effects be neutralized, and how can it be eliminated from the body? In answer to these questions at the present time, nothing could be offered but conjectures.

Dr. P. O. Hooper, of Arkansas, remarked that little or nothing can be offered or suggested or added to the exhaustive paper of Dr. Pepper, for no subject in medicine has received more elucidation than epilepsy. It is interesting to note the steps of progress in the numerous investigations which have led to results nearly as clear as absolute demonstrations; so plain as to be accepted with singular unanimity by all who have carefully given the subject a thought. The one fact received, that anæmia of the brain and spinal cord is the direct cause of epilepsy, explains its phenomena in all their varied phases. Leaving out the classifications of *grand mal, haut mal, petit mal,* and the like as unnecessary, if the enquirers will regard both the disease and its direct cause as unities, it seems that a great stride will have been made in the direction of the simple truth as to its nature, causes, pathology and treatment.

C. J. B. Williams gave the key-note in vascular

[1]Ziemssen's Cyclopædia Vol. XIV., p. 279.

pathology when most of us were pupils. He has been followed by Addison, Waller, and Conheim. In another direction, Claude Bernard, Brown-Séquard and others were pursuing their studies of the nervous system. Others have been giving special attention to phenomena affected by the results of investigations in these same directions. Notice, epilepsy, as has been said, is the immediate effect of a sudden anæmia of brain and spinal cord. Analogy indicates as much, as shown in animals when bled to death. Post-mortem examinations and vivisections afford almost conclusive confirmation. Now, what superinduces the sudden anæmia? Constriction of vessels supplying the nervous centres. Then, an irritation anywhere, or from any cause, in certain predisposed constitutions may be sufficient to effect it, and the usual central and peripheral causes; whether the irritation exists in one tissue or another; whether it is found in brain itself, in the alimentary canal, uterus, or muscular tissue, or wherever it may be, the result is exactly the same. The irritation is conveyed by a sentient medium to the nerve centres, and reflected. In its course the motor filaments are influenced by the distribution of the sympathetic, and the vascular supply of the part to which the reflection tends is modified. If the point of tendency happens to be in the line of the nerve centres, and the modification should be a sudden constriction, epilepsy in some of its protean phases would be looked for, because the circulation would be suddenly shut off, so to speak, and the consequent anæmia give rise to epilepsy.

A late very excellent work by Dr. E. C. Mann, says in substance, that it seems very probable that owing to functional disturbance of the vaso-motor nerves which are distributed to the cerebral blood-vessels, we have during an epileptic paroxysm, primarily the vascular tonus just referred to, causing sudden anæmia of the brain, followed immediately by congestion and hyperanæmia.

The whole motor tract of the cerebrum, and also of the spinal cord, is undoubtedly connected with the production of epilepsy; and probably, also, the motor nuclei in the medulla oblongata and on the floor of the fourth ventricle, and the corpus striatum, as one of the centres of motion, is also concerned. The conclusion of this writer is irresistible, the *rationale* is clear, and the theory most plausible. Accepting this line of reasoning as true, a flood of light is thrown upon both the endless variety of manifestations in which the malady shows itself, and the efficacy or want of it of the almost endless list of remedies and remedial agencies that have challenged the consideration of practitioners.

The manifestations will depend briefly as follows: Upon the constitution of the patient and the nature and locality of the irritation. In respect to the former, an unstable, nervous organization, whether hereditary or acquired, is of the first importance as tending to a predisposition; as to the latter, they are endless in variety. In the treatment, any means or measures that will create and maintain a steady tone of the vessels which supply the nervous centres would be esteemed as most useful, whilst an agent sufficiently sedative and tranquilizing to guard and protect those tissues against the assaults of irritating influences, would rank as desirable adjuvants. Nitrate silver has long maintained a reputation based no doubt upon its tonic powers, but lately ergot has attained a recognized supremacy. In fixing attention to the bromides as almost a specific, Sir Charles Locock takes the attitude of a great benefactor to the race.

It would be futile to look for the remedies indicated without such an examination as would serve to locate the prime cause or irritation. Wherever found, its removal is a matter of first consideration. The agencies and methods must be determined by the facts and circumstances of each particular case.

Dr. Eugene Grissom, of N. C., remarked as follows:

Epilepsy as an *organic* disease is usually inherited, either as such, or as a sequel of some other neurosis. It is preceded, for the most part, by one or more eclamptic seizures in childhood, and commonly makes its onset at the period of puberty.

It may be the result of conception during drunkenness, or after any other prolonged depression of the system, leading to its enervation. It may serve as the representative of chorea, or of partial paralysis in the father, or of hysteria, or any wasting uterine or ovarian affection in the mother. It may accompany such disorganization of the brain as results from syphilitic cranial changes. It may appear in the child of phthisical, or scrofulous, or rickety parents. Finally, it may be the last expression of an ancestral history of degeneration, traceable, perhaps, for many generations (like the royal house of Spain), on its way downward, to extinction in cretinism.

The influence of hereditary bias in developing the unstable nervous condition which eventuates in epilepsy, from a parentage either already affected by some recognized neurosis, or else so far weakened and degraded from a normal vital standard by a succession of either moral or physical causes of depression, as to fail of nervous nutrition; this influence, I say, is acknowledged by all who have studied the statistics of this interesting subject. It is clearly exhibited by Echeverria in a table of 532 cases, and conceded by all writers of note.

It is hardly to be expected that any course of therapeutics can create a man anew, and restore in a single lifetime, the losses resulting from misused minds and bodies. It is impossible to repair in a day the long-continued breaches of systemic integrity made by persistence in evil habits, mental or physical. When, therefore, organic or idiopathic epilepsy is recognized, as clearly the result of gradual and profound degeneration, the prognosis cannot be hopeful.

The extremity of the difficulty lies in the very fact that the channels of restoration are themselves choked. If *pain* is the expression of *mal-nutrition*, the epileptic movement is believed to be, in the highest degree, the result of *in-nutrition* of the nervous centres. The very circulation through the vaso-motor apparatus, is disordered, irregular and fitful, and the stimuli to which the system would ordinarily respond with advantage, whether of food, or exercise, or sensory irritations of whatever character, are capable of becoming transformed to excitants, through the trophic

changes, by which the normal action is driven into tortuous and abnormal influence upon nerve centres, in the victim of epilepsy.

The deep-seated obstacle to a scientific therapeutics would seem to be the inability to control the channels of communication, in the case of the confirmed and inherited epileptic. The actions and reactions of ordinary organic life are modified by the introduction of a mysterious element, which capriciously breaks for a moment the usual interdependence of nerve or muscle, or nervous filaments and their appropriate centre. The expression of the face is gone, the voice changes, every muscle has taken upon itself strained and forced, perhaps unnatural uses; more than all, and most significant of all, the mental manifestations are those of another and apparently foreign creature—everything denotes that the fountains of the depths of being are broken up. We are not to suppose that all this irregularity of muscular and nervous movement on the surface, and this utter change of psychical expression, can be unattended with deep-seated change in glandular action, in the nutritive movements of the system, and, indeed, in the chemicovital processes in general.

It will be necessary to discover the secrets of the transmission of nervous force, before we can pronounce authoritatively upon the genesis of epilepsy, whether considered as the ultimate result of *lives* which disorder nutrition and disarrange nervous distribution, or as an immediate consequence of any agency of depression.

But that branch of the subject which is more fruitful of hope for the medical man, is the consideration of *functional* epilepsy—of that symptom, perhaps, rather than disease, which may be present in almost every disease, as some writer has remarked—which may accompany what is apparently a slight intestinal irritation, as from the parasites which abound in childhood, or from dentition, or the changes incident to menstruation, or the change of life; or, again, from such traumatic causes as a blow on the head or spine, a sunstroke, great cold, and certain moral causes like excessive fright, which sometimes strike down the system with such force that life itself hardly rallies after the blow.

The functional form of epilepsy is by far the most frequent, and its alleviation or cure demands, and ought to receive, much more pains-taking care and attention than it usually receives from the general practitioner. It is protean in its development, and must be met by protean efforts. Its two sources may be broadly defined as:

First. That which proceeds from any great draught upon the vital powers; as, in a physical sense, from a great loss of blood, leaving the nerve centres anæmic, or in a moral sense, from an overpowering fright, in some way producing the same anæmia by the shock, which leaves the nerve centre for the time being unable to appropriate the food required for momentary nutrition.

Second. That epilepsy which is set up by the suffering of the peripheral nervous trunks, from some perhaps minute but ever-irritating cause of disturbance of the terminating nervous filaments, either of the cutaneous or of the splanchnoid distribution.

If one is tempted to ask whether, in the latter case, the *post hoc* has been taken for the *propter hoc*, let us ask ourselves how we can account for the terrific consequences of tetanus as a result of an insignificant wound, or the propagation of fatal erysipelas from a mere scratch, which has really injured nothing of importance to the system, provided the nervous and circulatory distribution were unharmed; or, again, the spectacle of hydrophobia from a nervous injury scarcely visible, and perhaps long forgotten?

But this subject has been set at rest by the results of modern treatment—by the brilliant practice of Dr. Sayre, in relief of epilepsy from irritation of the genito-urinary apparatus—by the successful application of the trephine to relieve epilepsy from the entanglement of nervous filaments in a cicatrix—by the effects of nerve stretching in diseases of a choreic or epileptic character, confined to the track of the nerves of voluntary motion—by the cases of Battey's operation in which relief has been obtained from epileptic disorder, and such other evidence as medical science is daily supplying.

It is characteristic of *functional* epilepsy that it expends its morbid power chiefly upon the nerves of voluntary motion, and those most frequently used;—as, for example, upon the great toe in the foot, or the index-finger and muscles of the forearm, or again of the tongue, lips and eyelids. How often does the interruption of the delicate movements of the tongue in precise articulation betray the first weakness in the power of coördination!

Therapeutic measures, therefore, which are to be adopted in addition to constitutional treatment, should be directed to the tonic regimen of the voluntary muscular system, which is in danger of losing the inhibitory control over its vaso-motor circulation, by reason of nerve-weakness.

The connection of epilepsy with anæmia has been shown by Van der Kolk and others. It is emphatically an affection associated with weakness; with atrophy, or with loss of tonic ability to maintain control over the circulation, and *with that*, and in a much more significant sense, want of control of those manifestations of the brain power which accompany the *conscious* exercise of will, memory or judgment. This topic, if pursued, would open the intricate, and as yet unsolved problems of moral responsibility within the circle of the epileptic eclipse.

Dr. Hughlings Jackson (West Riding Asylum Reports) affirms that the epileptic paroxysm is a sudden, excessive and rapid discharge of gray matter of some part of the brain. The gray matter, which is the seat of what he determines a discharging lesion, is in a constant abnormal state of nutrition, and hence it is constantly abnormal in its function. He represents the primary attack of epilepsy as the discharge of a part which has been for some time in a state of mal-nutrition.

Certainly it is perhaps *not* a rash supposition that the brain, acting as a whole, with its allied ganglia controls the operations of systemic and voluntary motion by the harmonious action of the forces whose

origin proceeds from the nerve centres, inspired under proper nutrition, when of normal construction at birth and without subsequent injury, with the *vis vitæ* that will probably forever elude investigation, however thorough and delicate. If this harmony is conceived to be maintained by the original propelling energy of each centre, and also by the inhibitory control which each possesses upon the others, to a certain extent, we can perceive that a failure of nutrition in any centre, may leave its reciprocal or corresponding centre without the checking influence essential to the due marshalling of the whole movement in voluntary action, under the command of the will, if we may venture upon a metaphysical term in considering a physical problem.

The epileptic affection is essentially a stoppage or a transformation of the movements, not of muscular centres only, which are the mere epiphenomena which attract our vision, but it is deeper and more important; the irregular, involuntary, and exhaustive discharge is most effective in its consequences when the upper sensory and cortical centres are shaken and disordered, and intellectual perception and moral responsibility are tottering, or for the time being lying prostrate under the physical storm which has spent itself upward, rather than merely shaken the victim with choreic muscular spasm.

Whether nervous movement proceeds from one molecule to another by chemical adaptation and momentary molecular change induced by affinities paralleled by isomerism, or through some as yet unknown development of force akin to action by electrolysis, or any corresponding method of the transmission of force, it would seem that in epilepsy there is an interruption to the transmission of normal movement, a separation of the links, a stoppage in the even flow of nutrition for the cells, which harmonious organic life demands.

In regard to the therapeutics of functional epilepsy, what we have said will, in a measure, indicate the treatment.

The most careful attention to diet is required to build up the system, and supply the nerve centres with a sufficiency of pure blood. Regular and systematic, but above all things *un*fatiguing exercise follows as a matter of course. Fatigue simply invites exhaustion, anæmia of the medulla, and the paroxysm. How often we witness the epileptic convulsion as a sequel of exhaustive effort. Such climatic tendencies and daily occupations and educative influences as tend to build up the whole man healthfully and happily, and thus to erect a brakewater against all that would harrass, oppress, or wear the bodily or mental frame, are imperatively indicated. Much must be left to rest, to patience, to time, to consolidate new habits, and preserve new channels of normal nervous nutrition.

The topical effect of drugs and medication I need not dwell upon. In epilepsy from syphilis the iodide and mercurial preparations have been of value. The bromides, digitalis, atropine—all these are favored by those who seek to reduce the susceptibility of the medulla and allay erethism, if present, after the proximate cause has been removed. *Zinc* preparations have been useful in irritations of the pneumo-gastric, *iron* in cases after chlorosis, *quinine* in general anæmic states, and *electricity* in primary affections of the sympathetic system.

Dr. T. B. Lester, of Kansas City, Mo., said, the clinical advantages afforded the general practitioner, are not such as enable him to throw much light upon a subject so obscure as epilepsy. Yet the comparatively few facts which he finds in his limited field of observation are important in making up the great aggregate of facts which we may reasonably hope will one day dispel the darkness which enshrouds the true nature and proper treatment of this disease.

The paper of Dr. Pepper to which we have just listened with so much pleasure and profit makes a strong plea for a rational treatment based upon the constitutional peculiarity and special causation of each individual case.

This course of treatment cannot fail to commend itself to every one, save those who pertinaciously cling to some cherished plan of routine treatment.

There can be but little doubt that a large majority of the functional derangements of the nerve centres, which give rise to the pathological phenomena of epilepsy of every grade, have their origin outside these centres themselves. The great difficulty which lies in our way in treatment is two-fold—our inability in many cases to remove the primary cause—and to restore the reflex and convulsive centres to their normal degree of excitability. It is comparatively easy to comprehend how a purely local peripheral cause long continued by its irritation of the reflex centres may ultimately result in such histological changes, so that, should we succeed in removing the primary factor, the epileptic seizures would still continue to recur. Such is the familiar history of epilepsy, and it teaches us the important lesson to be vigilant in our search for every probable source of irritation, and prompt in removing it by every means in our power; for it is positively beyond our ability to estimate the measure of damage there is in delay.

It is probable that those cases dependent on some constitutional disease—with rare exceptions—are developed through the *intermediate* influence of the malnutrition which they produce, and not from any *direct* toxic influence which may be exerted upon the nerve centres, through the agency of retained excrementitious elements or other products of mal-assimilation. This, I think, may be predicated of those cases having their supposed origin in syphilis, lead-poisoning, frequently recurring hæmorrhages, renal insufficiency, or other defective elimination, chronic malarial infection, mental or corporeal exhaustion, etc.

Any constitutional disease which produces general anæmia is competent to develop an epileptic seizure, upon the supervention of slight peripheral irritation owing to the increased excitability of the reflex, and convulsive centres, which anæmia is well known to produce. If this be true, how futile must be our treatment, if alone directed to the sedation of this increased excitability. This end can be oftentimes accomplished by the influence of the potassium bromide, but the relief must at best be temporary and

partial unless conjoined with the use of such restoratives as iron, arsenic, cod liver oil, nutritious diet, good sanitary surroundings, and freedom from overtaxation of body and mind.

Diminished arterial blood pressure, with its concomitant increased venous blood pressure, is competent to establish the same, or similar condition of malnutrition, as the other constitutional conditions before mentioned. I have a case under treatment at this time, in which the first seizure occurred at the age of 64 years, without any assignable local or constitutional cause, except the enfeebled action of the heart, incident to the degeneration of old age.

In this case potassium bromide has been tried, with the effect only of lessening the frequency and severity of the attacks while the patient was kept strongly under its influence, but under the conjoined influence of the bromide digitalis, iron, and cod liver oil, the case has been much improved.

If the paper of Dr. Pepper does nothing more than to direct the attention of the profession, in a forcible manner as it does, to the importance of a just discrimination, between the varied constitutional conditions which exist in epilepsy, to the end that we may treat it more rationally, it will have accomplished great good.

J. J. Caldwell, M.D., of Baltimore asked what is Epilepsy?

Epilepsy a disease—or a deficiency—or a disturbance of the brain and nervous system, whereby there is a sudden and deadlike arterial anæmia of the brain and nerve centres.

These phenomena may indicate functional or organic lesions, hence the disease may be curable or incurable. As a proof of the above proposition I will cite the following theories, facts and authorities:

PONS AXIS.

No. 1.—Von Der Kolk on the Medulla.

No. 2.—Kroons on Asymetry of the Medulla Oblongata.

No. 3.—Solberg on the Cord.

No. 4—Lebut and Delasauve and Meynert on Ammonhorn.

No. 5.—Kussmaul on Ammonhorn.

No. 6.—Pathological Anatomy, Anæmia—Hyperæsthenia of the pons.

No. 7.—Traumatic lesions of brain and cord, electrical and toxic irritation of the same.

No. 8.—Sir Ashley Cooper's experiments on ligation and compression of the vessels.

No. 9.—Marshall Hall & Travers on excessive hæmorrhage in warm-blooded animals. Kussmaul & Tenner on the same.

No. 10.—Kussmaul & Tenner, experiments with watch glass on the brain and compression on the Carotids.

No. 11.—Landois on Venous Hyperæmia and Epileptiform Convulsions momentarily obliterating the superior Vena Cava in Rabbits.

No. 12.—Herman on the same, thus substantiating Von der Kolk's experiments.

No. 13.—Nothnagel on the roll played by the pons and medulla in general. Convulsions by irritating the brain with a needle to locate the true boundaries of the convulsive centre. Substantiates experiments of Schiff and Deiter.

No. 14.—The relation of lesions of the cord or of certain spinal nerves to epilepsy were noticed for the first time by Brown-Sequard who has cleared up the question and proves a hereditary sequence. Westphal has shown that in Guinea pigs, blows upon the head may immediately give rise to the production of epileptiform attacks.

No. 15.—Ferner's recent researches on Epileptiform shows convulsions may be produced upon the opposite side of the body by passing strong induced currents through one of the Cerebral hemispheres.

No. 16.—Bartholow's experiments upon a woman's brain by the induced current gave rise to epileptiform convulsions upon the opposite side of the body.

No. 17.—Brown-Sequard has shown contraction of the vessels of the "Cerebral-pia-mater in epileptic animals."

No. 18.—Travers, Nothnagel and others have shown that irritation of the peripheral nerves act in the same manner upon the cerebral vessels.

No. 19.—Dr. Howe on Epilepsy from sexual excesses.

No. 20.—Longet on irregular muscular action due to epilepsy demonstrating that the tuber anulare of the pons controls sensation and motion mandates.

No. 21.—Dr. Hammond on spasmodic contraction of the muscles, and his operations for clitordectomy.

No. 22.—Dr. Baker on effects of epilepsy on the genital organs.

No. 23.—Dr. Flint on case of female masturbation.

No. 24.—Baker Brown, of London, corroborates opinion of Dr. Flint.

No. 25.—Incurable case.

No. 26.—Terrier, Surrurier. Case of a soldier.

No. 27.—Zimmerman, case of convulsions produced by every emission.

No. 28.—Hospital records of ven. exceps.

No. 29.—Symptoms of epilepsy or falling sickness.

No. 30.—Duration of fit, etc.

No. 31.—Feigned epilepsy or malingering.

No. 32.—Epilepsy a nervous affection.

No. 33.—Ceasar, Bonaparte, Petrach.

A NEW METHOD OF TREATING ASIATIC CHOLERA PROPOSED.

BY S. S. TODD, M.D., PROFESSOR OF DISEASES OF WOMEN IN THE KANSAS CITY MEDICAL COLLEGE.

I do not wish in this brief paper to go into the subject of natural history of this disease. Thanks to modern investigation we seem to stand on pretty solid ground now with respect to its cause and mode of propagation, and the best means of warding off the disease, lessening the ratio of its mortality, and possibly its *fatality*—or the ratio of deaths to the number attacked.

More light is needed on the subject of the patholo-

gy of the disease, however, and especially is it needed that the experience gained in former visitations and the present advanced views concerning the nature of the disease shall give better results in treatment than have been had hitherto.

The plan of treatment here proposed, it may be said, has the perilous disadvantage of being a *proposition*—something untried. It is this fact probably that will most commend it.

The hypodermic syringe of half-drachm capacity is familiar to all, and I am inclined to think that many indulge in the futile hope that in the coming epidemic much good will be had from the use of the hypodermic syringe in the ordinary way. It does not seem to have occurred to any, however, that the capacity of this instrument may be so increased that, instead of a few drops of some fluid, quarts of water, medicated as desired, may be made to enter the circulation within a short space of time, and that the good results to be gained from the use of the instrument may depend almost solely upon its capacity to fill the depleted circulatory system rapidly with some desired fluid.

The possibility of doing this, even in cases of collapse, will hardly be questioned, and the *value* of the suggestion will we think be duly appreciated by those who have passed through an epidemic of this disease and witnessed the torrents of serum poured forth and lost to the circulation with every evacuation of the bowels, and seen the hours of pitiless retching of the stomach as it rejected everything put into it, either to relieve the maddening thirst or to restore to the organism its wasted fluids.

Some years ago I was led to believe that good results might be gained from the use of a syringe of such capacity as would allow of the introduction into the circulatory system, hypodermically, of large volumes of defibrinated blood, artificial serum, stimulants, etc., in cases ordinarily turned over to transfusion, as well as for the use of alcoholic and other stimulants in certain other adynamic states. No favorable opportunity of testing this method of transfusion has since occurred, but within the past two years I have, in some notable cases of great prostration tested the value of alcoholic stimulants thus administered. Two of these were cases of septicæmia—one of them after a labor and the other following on ovariotomy.

In each of these cases rapid and considerable reduction both of pulse and temperature invariably and repeatedly followed the injection into the cellular tissue of the thigh of from 3 to 6 drachms of whiskey (sometimes brandy) with an equal quantity of water, the effects lasting for about 12 hours. The force of the heart's action was always increased by the injection, the pulse losing in rapidity from 10 to 15 beats per minute and the temperature being lowered from one to two degrees,— to rise again 10 or twelve hours afterwards if the dose were not repeated. Both of the cases referred to resulted fatally, but in one of them I am sure that life was prolonged for more than a week.

In one case of threatened death from shock and loss of blood during an ovariotomy, the patient's life was saved by an injection of two ounces and a quarter of the above named mixture. No ill-effects were seen to follow these large doses, and I am of the opinion that in certain cases the quantity of the alcoholic liquor might be increased with safety to two, or even more than two ounces, if sufficiently diluted. The cases tolerating so large a quantity would be those where there had been exhaustive hæmorrhage, or great loss of blood serum as in cholera.

The object to be gained by the proposed use of the syringe in advanced stages of cholera is this: that, without tasking the stomach, we may flood the circulatory system with an artificial serum that shall supply the place as near as may be, of that which is being wasted, and also to introduce in sufficient quantities alcoholic, or other stimulants, and whatever else may be indicated.

The course of treatment then to which I wish to direct attention, and with the value of which it is perhaps needless to say I am profoundly impressed, would, without going into details, be something like this: All cases in their incipiency, and all *mild* cases throughout the attack should be treated with opiates and astringents, and *hot* water acidulated with sulphuric acid should be allowed, and urged upon the patient, to the utter exclusion of ice, ice-water, and all ice-cold drinks. Whiskey, wine, or brandy may be added if the patient be much prostrated, or be suffering from fear, but in moderate quantities only. The abdomen should be covered with a large mustard poultice, and the feet should be kept warm.

In a more advanced stage of the disease and in all severe cases, from the outset no time need be wasted with opiates or astringents, as they will do little good. Collapse is now imminent, and the hot drink should now be given more assiduously than before, and repeated again and again if the stomach reject it. The body should be kept as warm as possible with bottles of hot water or other appliance, and no rubbing allowed, if the patient can be otherwise kept quiet, as it limits the advantage to be gained from application of heat, an important consideration. Ice and ice-cold drinks, contra-indicated in all stages, are most hurtful in this, and however grateful to the patient, and however eagerly craved, should be rigorously denied, as tending to cause, or aggravate an already existing algid condition.

It is now that the hypodermic syringe is to prove useful, if at all. Large quantities of a fluid should be injected, at short intervals, composed of distilled water to which has been added a small quantity each of chloride of sodium and chloride of potassium, and such an amount of *alcohol* as may be deemed requisite, the solution to register 98° F. when ready for use. These injections should be repeated at intervals of one or two hours, the interval, the quantity of alcohol, as well as the whole amount of fluid used, to be regulated by the amount of serum waste, by the degree of prostration, and by the size, age, and sex of the patient. It may not be out of place to say here that the writer has passed through the midst of two cholera epidemics. A syringe of 4 oz. capacity may be had of Geo. Tieman & Co., 67 Chatham street, New York.

Kansas City, Mo., July 22, 1884.

A NEW FARADIC BATTERY AND ITS USE.

BY ROBERT NEWMAN, M.D., NEW YORK.

Read before the Section of Practice of Medicine of the American Medical Association at Washington, May 8, 1884.

The object of this paper is to urge the necessity of having a reliable faradic battery ready to work, at a moment's notice, in every practitioner's office; and to exhibit here a new improvement, which promises the completion of this desideratum.

The faradic current of electricity acts chiefly "mechanical." From reports of clinical cases, it seems that it has other qualities, which at present are not sufficiently defined, but unquestionably the principal action is "*mechanical.*" It is a mistaken idea, which some entertain, that a faradic battery has some galvanic action, because one part of such a battery consists of one or two cells. The patient never gets an effect from these cells, as they act solely as a motor power to the induction coil; and never can give galvanism.

The faradic current acts through the nerve-filaments on the muscles; its passage through the nerve produces each time a mechanical concussion, it provokes the excitation of the motor and sensitive nerves, and thereby causes contraction of voluntary and involuntary muscles.

Therefore the most important use of the faradic current in medicine must necessarily represent a "passive motion," in all cases where active motion is impracticable or impossible. In practice this electricity, therefore, will be used in all kinds of paralysis in which the muscles have not lost their electric contractibility; in accidents of poisoning and asphyxia; in all cases of temporary suspended animation. In the latter class of cases life is lost by a failing of the heart's action. The indication therefore is to sustain the circulation by the regular pulsation of the heart, until the poison is eliminated from the system by antidotes, and the heart resumes its function naturally. Many lives have been saved by the prompt application of the faradic electricity.

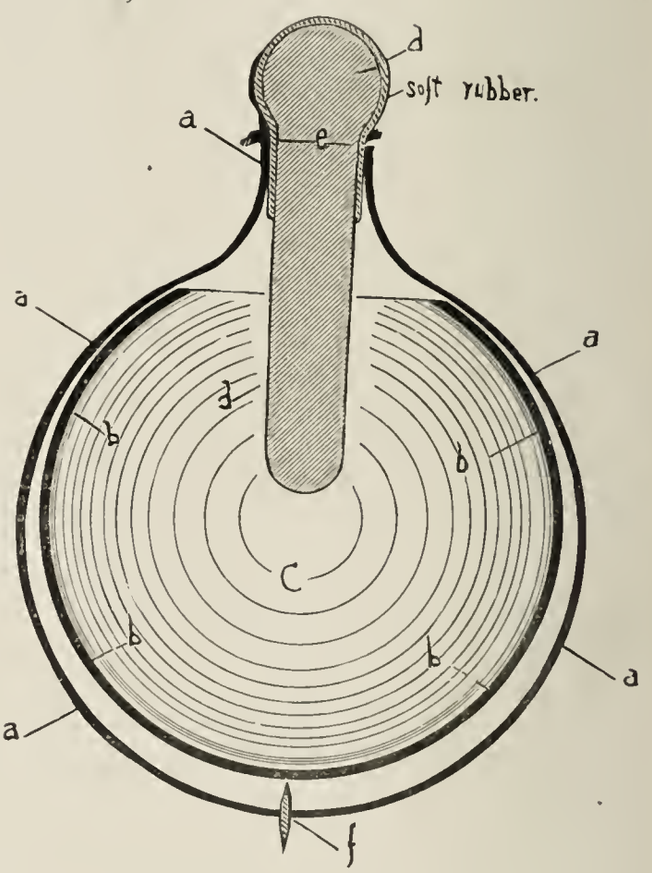
It is therefore of the greatest importance to have a battery always ready for action in cases of emergencies. *One* important cause why electricity is not as popular among the profession as it should be, is the want of a good battery, which is ready for use at a moment's notice, and works without fail, which is so portable, that it will neither break, nor spill the fluid, when carried about. I greet with pleasure a new and very simple invention, which promises to supply this want.

It is a new portable faradic battery, connected with and inside of dumb-bells. It can be used separately, or while exercising with dumb-bells.

The battery, either in use or at rest, is so secured that the fluid can not be upset, no matter how it is thrown about. While the battery is in full operation, the end of the zinc stopper acts at the same time as one of the elements. If it is desirable to save the zinc, while the battery is at rest, the stopper of zinc can be exchanged with another stopper of rubber, which also closes the battery hermetically.

This battery can be transported in any possible position, taken in bed by the patient, carried about town, placed in the carriage of the doctor, rolled about on board a vessel, used in the gymnasium, or any room, and in any position. It works as primary or secondary, and both currents may be used in combination. The electro-magnetic power can be regulated from weak to strong, by degrees, at will. There is at present not one battery in existence, which fulfills these indications, notwithstanding advertisements may represent it as such.

This drawing represents the battery itself, (without the helix).



EXPLANATION OF FIGURE.

(*a*) Round flask of hard rubber.
(*b*) Lining of carbon, representing one element.
(*c*) Cavity for fluid.
(*d*) Stopper of zinc, representing the second element, upper part surrounded by soft rubber, closing hermetically.
(*e*) The opening of flask for filling, and closed by stopper *d*.
(*f*) A platinum peg, pressing a spring downwards, and connecting with helix.

You will see here the battery proper, consisting of a hard rubber thin hollow flask, which can be manufactured so small that it can be carried in a waistcoat pocket, or ordered of any size for a large battery. This flask is lined inside with carbon, acting as one element. The principal novelty is the stopper, a round piece of zinc, which is the second element. Its upper portion is surrounded or packed with soft rubber, which closes the flask hermetically, so that no fluid can be spilled. The flask is filled with an aqueous solution of bisulphate of mercury, or any other generating fluid. When this little battery is placed in its wooden encasement, it is perfectly safe from any injury. A platinum peg inserted through the lower part of the hard rubber flask presses a spring

downwards, which is connected with the helix of the battery, and sets it in motion. In principle, the instrument is like the Gaiffé battery, but it is stronger and keeps in active motion many hours.

The beauty of the invention is its simplicity, and its important part is a lump of zinc, which closes the battery hermetically and acts at the same time as the second element. This closure also prevents the evaporation of the battery's fluid. The ingenious inventor is Dr. Louis Drescher. I hope that the principle will be applied in such a combination that we will have soon a portable galvanic battery in its widest meaning of the term.

MEDICAL PROGRESS.

ANATOMY AND PHYSIOLOGY.

On the Action of the Intercostal Muscles in Respiration.—M. Laborde, who is in charge of the physiological work of the Paris faculty, has been making some experiments upon the body of a criminal called Campi, who was guillotined in Paris, April 30. Having everything prepared for his purposes, the body was received at the laboratory, one hour and twenty minutes after the execution. The description of the experiments as given in the *Revue Scientifique* is very interesting; the blood from a dog being injected into the blood-vessels of the head, the filling of the capillaries and the blush upon the face, with certain fibrillary contractions are very well described. The muscular excitability was very much increased after the transfusion, and an opening being made through the cranium by means of the trephine, the condition of the brain *in situ* was studied with more interest, both in connection with the capillary supply to the pia mater which was admirably injected, and with reference to the views of M. Luy's on the locomotion of the brain, which latter seemed to be in a measure confirmed by these observations.

Particular attention was paid to the study of the functions of the intercostal muscles, during respiration. The opportunity was a particularly good one, because the muscles were very well developed, and the muscular contractility was but little different from the normal condition. To render them very appreciable in their movements, the sternum was removed, then having laid bare the first five or six intercostal spaces, with their internal and external intercostal muscles, M. Laborde produced their isolated contractions by means of an interrupted current of moderate intensity.

1st. With the internal intercostal muscle each excitation and each muscular contraction caused invariably a depression of the superior portion towards the inferior. If the current was extended to several intercostal muscles at the same time, always restricted to the internal intercostals, a downward movement *en masse* of the side of the thorax was produced.

2nd. With the external intercostal muscle the same excitation produced constantly with the muscular contraction which followed, an elevation of the inferior portion towards the superior, the latter being held motionless by a light pressure of the fingers. And when the side was made motionless as when the scaleni act physiologically, an isolated current was passed through several of the spaces at the same time and acting upon the external intercostals, there was a synergic elevation *en masse* of the side and of the thorax.

These results were produced a great number of times in the presence of several physiologists, among them Professor Beclard, and even two hours after beginning the experiments the muscles still contracted very markedly. M. Laborde considers them as positively confirming the view that the internal intercostals are depressors of the walls of the thorax and consequently expirators; and that the external intercostals are elevators of the walls of the thorax and consequently inspirators.

MATERIA MEDICA AND THERAPEUTICS.

Epilepsy Treated with Hydrobromate of Conia.—R. Norris Wolfenden (*Practitioner*) gives the notes of seven cases of epilepsy treated by hydrobromate of conia with beneficial results. The medicine was given at first in half-grain doses three times a day, then increased to five-eighths of a grain, and in some cases, one and five-eighth grain doses were given twice daily for a week at a time. The drug failed where there were possibly gross lesions of the brain. The writer was induced to try it to avoid the unsightly eruptions following the use of bromide of potassium. The drawbacks to the use of the drug appear in the complaints of headache, and where in large doses, of giddiness, lasting for an hour after taking it, with sometimes a suffusion and congestion of the conjunctivæ. In the doses given, no cardiac or respiratory alterations were noticed. It is said that the dose of this drug must not exceed four and a half grains in twenty-four hours, commencing with one and a half grain. In this experience, a child of eight bore one and seven-eighths grain with only headache; a child of seven took one and a half grains per diem, without any complaint; two and a half grains per diem were taken by a female without complaint; one adult man took three and a quarter grains with impunity. In one case, two grains per diem caused sickness, headache, giddiness and "weakness" in a young man of eighteen. One and a half to two grains appears to be followed frequently by headache. Combined with constant application of the continuous current, Mr. Wolfenden has successfully treated a case of hemichorea with it.

MEDICINE.

On the Diagnostic Indications of Free Hydrochloric Acid in the Contents of the Stomach.—Kredel (*Zeitschrift f. Klin. Med.*) and (*Edin. Clin. and Path. Jour.*) has made use of tropæolin, methytriolet and iron-chloride-carbolate to obtain color-reactions, indicative of the presence of free hydrochloric acid in the contents of the stomach, when

washed out about six hours after a meal. His cases had all well-marked gastric dilatation, finding that in carcinoma of the stomach there was almost invariably present free hydrochloric acid. He considers it as proven, that gastric carcinoma with dilatation of the stomach is thus marked out from gastrictasis dependent upon other causes, and that this test may be employed as a very valuable indication in doubtful cases.

THE SEPTIC PNEUMONIA OF NEW-BORN CHILDREN.—Silberman (*Deutsch. Archiv für Klin. Medic.* and *La Presse Médicale Belge*) gives the following conclusions:

1. The septic pneumonia of new-born and young children is closely associated with tracheobronchitis and should be regarded as a catarrhal pneumonia, or as a pneumonia from the introduction of foreign substances.

2. It is produced by the aspiration of the putrid amniotic liquid or the putrid genital secretion, or by the aspiration of air strongly charged with septic matter coming from the mother.

3. The disease is often complicated with affections of the pleura, but rarely with affections of the other organs.

4. The alveoli and the bronchi of children who have died with septic pneumonia are filled with numerous bacteria.

5. The blood of these children shows a remarkable abundance of leucocytes and a diminution or marked dissolution of the red blood globules.

6. Icterus is not a constant accompaniment to septic pneumonia.

7. Septic pneumonia shows itself in one to two days after birth.

8. A fatal termination is inevitable, in most of the cases it occurs on the third to fourth day of the disease.

9. The rapid penetration of septic substances into the lungs of new-born children, is favored by the incomplete closure of the glottis and by the shortness of the principal bronchus.

10. The great diffusion of the septic process in the lungs is favored by the metamorphosis of the epithelium and by the slight expiration of the newly-born, owing to the feebleness of their respiratory muscles.

SURGERY.

DEMONSTRATION OF BONE PREPARATIONS TREATED BY A CONVENIENT MODE OF MACERATION.—Partsch (*Beilage zum Centralbl. für Chirurgie and Edinburgh Clinical Journal*) recommends the following method:

The fresh preparations, freed as far as possible of their soft parts, are placed in a three to five per cent. solution of caustic soda kept at a temperature of from 80°–86° F. The solution is to be changed daily, and during the first week oftener if there is much of the soft parts and a medium quantity of solution. The soft parts swell up, and the fat dissolves and separates out on the surface of the fluid. The fluid is at first discolored by the hæmoglobin, but after frequent changing becomes clear. No decomposition occurs, and when it has previously been present, it soon disappears, and the bad smell goes away.

In from eight to fourteen days even the muscular attachments soften and come away, and the bones may be removed from the fluid quite white and smooth, and showing the most delicate structure. They should lie for a few days in cold water, bewrapped in blotting paper, and allowed to dry slowly.

EXTRAORDINARY, AND PROBABLY UNIQUE, CASE OF STONE IN THE BLADDER.—Dr. Alex. Patterson, (*Glasgow Medical Journal*) gives, with a photograph, natural size of the stone, the account of a man, 44 years of age, who as a youth was a factory operative and fell at the age of 17 with his leg astride an iron bar, sustaining, among other injuries, a rupture of the urethra and laceration of the perinæum. Through the opening in the perinæum, as well as by the urethra, blood passed for a period of two weeks. Two attempts at closure of the perineal fistula were ineffectually made, and the urine continued to dribble without ceasing.

Twenty-seven years later a physician was called upon to relieve pain in the bladder, for the relief of which sedatives were prescribed; nothing abnormal was noticeable beyond the sinus in the perinæum. About three weeks later, at another visit, the sinus was seen to be considerably enlarged, and the patient requested the doctor to introduce his finger through the fistula, and he would feel the stone. On passing his finger through the opening, the Doctor at once felt the calculus, but his finger entered a large irregular cavity in the stone, and the patient explained the presence of this by saying that he had introduced a chisel, with which he attempted to break up the mass, and had managed in this way to remove about *one ounce*.

The Doctor started home for forceps, with which to remove the stone, but during his absence, whilst the patient was walking about his room in great pain, the stone suddenly burst the perinæum, and fell heavily on the floor, breaking in two pieces. When expelled, it weighed nearly 14 ounces and a half, which, taken with the portion removed by the chisel, makes 15½ ounces, which is, so far as Dr. Patterson can discover, about the heaviest stone on record in the annals of surgery, in which the patient recovered after its removal.[1] The stone measured in long circumference 10⅝, and in the short circumference 8½ inches.

The lacerated perinæum was dressed with carbolic oil, and six days from the date of the expulsion of the stone, the patient was attending to his business as usual. He died at the age of 55 years, eleven years after the passage of the stone, and of an apoplectic attack. During the intervening period he passed his water with difficulty, and was fully convinced that there was another stone in his bladder. His physician could not pass even a No. 1 sound into the bladder through either urethra or sinus. In addition to

[1] Gross on the Urinary Organs, refers to Dr. Mettauer, of Virginia, as having in his possession a culculus of urate of ammonia, weighing upwards of sixteen ounces, which he removed by the lateral section, the patient making a good recovery.

the sinus, which never entirely closed, a cicatrix, three inches in length, existed in the perinæum.

Catheters and Self-Catheterism.—Dr. J. B. Mitchell, in the *Medical Press*, gives the results of two years' personal experience upon this subject. He dismisses the silver catheter of old times with but few words, the so-called gum elastic catheter with the wire stylet he considers may still be preferred in some cases by the practitioners, but in respect of cases wherein self-catheterism is practiced, the utility of that kind of instrument has entirely passed away. About a score of years ago, there came into notice a gum catheter without stylet, the surmounting of certain difficulties in the urethral passage being secured by means of a permanent bend implanted in the instrument (otherwise quite straight) at a short distance from the point. The best known of such catheters is the *condée*, so-called from the French word signifying elbowed or bent. It has the fewest inconveniences for self-catheterism, the manipulation required for its introduction into the bladder being slight and easily acquired. When irritation arises, that accident may be due to one or other of the following circumstances, or in some measure to all of them: (1) The condée, by the elbow room which it requires, gives rise to an increase of friction in its passage; (2) the eye of even the best made gum catheter presents edges calculated to ruffle the delicate mucous lining of the urethra, forced as it is at the constricted part, to dip into the hollow of the eye; (3) the "gum" material, which is dried linseed oil, being very readily acted upon by the oily or greasy lubricant wherewith the catheter, on being used, is smeared, after a certain amount of use, becomes sticky, thereby greatly adding to the friction.

Recognition of these inconveniences has led to the manufacture of catheters of mineralized India rubber. These instruments, which are extremely flexible, require no skilled manipulation; being quite straight there is no point of increased friction; the eye is hollowed out and the edges so smoothed down as to give rise to no ruffling whatever. (This is true, perhaps, of the English instrument only, the French India rubber catheter, for instance, being extremely defective — dangerously so in the eye). Resisting much better than "gum" the action of oil or grease, India rubber is much less liable to become sticky.

Dr. Mitchell here criticises the American catheter as furnished by Tiemann, by declaring that its fine polish deteriorates after being used a few times, either owing to the perishable nature of the rubber, or the effect of the London atmosphere upon it, and the substance of the catheter becomes brittle.

Whithin the last twelve months there has been brought out a gum instrument which may be looked upon as an imitation, in boiled linseed oil, of the India rubber catheter. It is straight throughout, and very nearly as pliable as that instrument. In two respects it certainly compares disadvantageously with the rubber catheter. The margin of the eye is not rounded off in such a way as to present no edge whatever to give rise to friction, while the material is very liable to deterioration from grease. The stickiness which results from this deterioration cannot be correctly estimated by the fingers. Being developed by heat and moisture, it rapidly shows itself, however, in the urethra, becoming more and more apparent, within certain limits, the longer the catheter remains in the passage with the obvious result, which in some cases is very marked, of causing the withdrawal of the instrument to be attended with greater resistance than its introduction. There have been cases, indeed, wherein very great effort was needed to withdraw a gum catheter which had been passed down the urethra with comparative ease. It is very obvious that such an amount of dragging of the sensitive mucous lining of the constricted urethral canal must be productive of irritation with more or less of consecutive mischief.

To keep a catheter smooth and free from stickiness, some lubricant must be used that could be easily acted upon by a solvent incapable of attacking India rubber. Castor oil proved a very superior lubricant, but when submitted to the action of alcohol it was only partially removed from the catheter. Absolute alcohol would remove it, but was expensive and not easily obtained. Sulphuric ether was expensive and attacked the rubber. Pyroxytic ether picks up castor oil in a surprising manner. After exposure to its action for an hour or two in a tube, an India rubber catheter, smeared inside as well as outside with castor oil, on being withdrawn and then dried, was found to be as clean and smooth as it was before use.

The consistency of castor oil allows of a large measure of extra lubrication. When a certain quantity was, by exhaustion at the superior orifice of the catheter, sucked into the tube of the instrument, it did not at once seek to escape, but kept its place till the constricted part of the urethra was reached; here pressure of a stripping character exerted between the finger and thumb, in a downward or inward direction, upon the extruding upper end of the instrument, by expelling the oil wherewith its opposite end was charged, flooded the urethra with lubricant at the constricted part, and bore along, as it were, the catheter point through the prostatic rapids, landing it safely in the bladder. Subsequent experience has abundantly shown that the flooding, when copious, is always completely effectual in the shooting of the urethral narrows.

Correction.—*Number 4, Vol. 3, July 26.*—By a simple omission to change the *number* and *date*, in the standing part of the first outside page of the Journal of July 26, in making up the form, the whole issue was printed and mailed bearing the same number and date on the outside title-page as the previous issue. This has led some of our readers to conclude, without looking further, that they had received two copies of No. 3, July 19, and no copy of No 4, July 26.

If each reader will note the table of contents or turn to the number and date of the first page of reading matter, he will see that he has the right number of the Journal, and by correcting the number and date on the outside with his pencil, he will not be troubled in making future references to his file.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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THE "ENGLISH METHOD" OF PERINEAL PROTECTION.—The prevention of perineal lacerations constitutes one of the most important advances in the art of midwifery. Adequate methods are of recent origin. Some years ago, Wigand, Meade, Jörg, Ritgeu, and in part Scanzoni, declaimed most vigorously against the act of "meddlesome midwifery." At the present day, however, accoucheurs do not affect this disregard for measures, whose object is the preservation, in an intact condition, of the female perinæum. Still, few general practitioners are disposed to value such prophylactic procedures as highly as a due regard for the physical welfare of their patients demands. Few medical gentlemen, for example, would agree with Hecker's *dictum*, that "the protection of the female perinæum is the most delicate, difficult and important function of the accoucheur."

As the resultant of many years' patient observation, experiment and discussion, a method of great efficiency has been developed, and is extensively practiced in Europe. For convenience of description, Carl Braun has designated it the "English Method." By Josef Spaeth and Gustav Braun it has been termed the Vienna Method, while Spiegelberg is of the opinion that the measure is of Teutonic origin. Charpentier, with characteristic patriotism, ascribes the procedure to Depaul. The important conclusion to be drawn from this diversity of opinion as to the origin of the method, is that the same general mode of prophylaxis of perineal tears is practiced in Austria, Germany, England and France. A universal proposition, in this connection, is not formulated. Schroeder, for example, adheres to the opinion expressed in the first edition of his book, that the kneeling posture, an exact imitation of the position assumed by the cow, is the physiological attitude of the parturient woman.

Certain French accoucheurs continue to follow the precepts of Louyse Bourgeois.

The object of perineal protection is to cause the neck to be the pole of the extension movement around the symphysis, and at the same time to retard the passage of the head, so that the elasticity of the perinæum is fully developed, the vaginal os completely dilated, and the anterior portion of the perinæum can retract over the face.

The left lateral position is most convenient for the patient and the accoucheur. The parturient woman lies upon her left side in such a manner that her head, approximated to the chest, is turned towards the left edge of the bed, while the pelvic extremity is directed to the right edge of the bed. The left lower extremity is extended, the right, with knee-joint semi-flexed, is separated from its fellow by a pillow, or better, an attendant. The accoucheur sits on the right edge of the bed, behind his patient, passes his left hand over her abdominal surface, between the thighs, and applies the palmar surface of his fingers to the advancing segment of the fœtal head, to control the rapidity of its passage, and cause the neck to engage under the sub-pubic surface, as the pole of the extension movement.

The right hand is placed upon the perinæum (only during a pain) in such a manner that the thumb is laid along the right *labium majus*, the index and other fingers rest behind the left *labium majus*, while the volar surface of the hand covers the distended perinæum. The edges of the *labia* and the anterior edge of the perinæum are uncovered. In the pause between contractions, the accoucheur remains passive. In the beginning of a contraction, no pressure is made upon the perinæum, and the head is allowed to advance as far as the circumference of the vulvar orifice and the distensibility of the perinæum will admit. When the acme of the contraction is reached, both hands assume their respective positions, and guard the further progress of the head.

When the pains become violent, the abdominal muscles contract powerfully, and the woman throws herself about restlessly, the accoucheur fixes the pelvis between his arms,—or better, between his left arm and thorax,—presses the advancing occiput backwards, that is, keeps up *flexion*, while the right hand assists the manœuvre, by pressure against the sinciput. By slow, frequent advances, the cephalic

segment dilates the vulvar outlet, and develops the elasticity of the perineal structures. Little by little, the occiput and parietal protuberances pass beyond the plane of the vaginal os and the foetal neck is applied to the sub-pubic surface. Now is the time of greatest danger. The women opens her mouth, cries out, and renders the auxiliary forces inoperative. In the pause, between two pains, the right hand, by moderate concentric pressure on the perinæum against the forehead, forces the head in the direction of the pubic arch, so that the child's chin is still approximated to the chest. In this manner, after the maximum dilatation of the vulvar os and development of the elasticity of the perineal structures, the fœtal head is caused to present with its smallest diameters and circumference. *Sub*-occipito-bregmatic, *sub*-occipito-frontal, and *sub*-occipito-mental diameters and circumference, dimensions approximating the smallest possible vertical measurements, are substituted for occipito-bregmatic, occipito-frontal, occipito-mental diameters and circumference.

It must be distinctly borne in mind, that, under certain definite conditions, the preservation of the female perinæum in an intact state, is an impossible task. Some of these conditions are acquired *atresiæ* and organic stenoses of the vaginal os. Under these circumstances, episiotomy, an operation defended by Eichelberg 1850, Scanzoni 1852, Ritgeu,—is indicated.

The *constrictor cunni* is divided on either side of the *Labia majora*, in the direction of the ischiatic tuberosities, to the extent of four or five millimetres.

Mere verbal analyses and descriptions convey but an imperfect idea of the method here indicated.

Observation of the midwives in the Vienna General Hospital in the exercise of their truly wonderful manipulative skill, and actual practice under their direction, would give a more adequate conception and secure a more perfect mastery of this operative procedure.

The "English" method of perineal protection, thus briefly recounted, presents important points of difference from the method of Dr. James D. McGaughey, of Wallingford, Conn., ably sketched in the June number, current year of the *The American Journal of Obstetrics*.

Gumma of the Auricle.—Gumma of the auricle is certainly not often met with, in the absence of other syphilitic symptoms existing at the same time. Yet there is no reason, in the nature of things, why the ear as well as any other region of the body should not be so affected. One such case having occurred in the practice of Dr. Hessler, of Halle, is summarized in the Annales des Maladies de l'Oreille, du Larynx, etc., July, 1884.

The affection began as a swelling in the concave part of the auricle of right ear. It grew very large, the swelling extending to the posterior part of the ear and the mastoid region, obliterating even the angle at the back of the ear. It was of a red color at first, and then became livid. It was so painful that sleeping on that side was impossible. It is said to have suppurated for a few days, and then to have healed of itself. Although the swelling was so great, the meatus, although somewhat swollen, remained open, and the hearing was not impaired.

The man confessed to have had syphilis and to have been treated for the same, and the sore looked syphilitic, but in the absence of other symptoms on the body, it was not thought desirable to institute syphilitic treatment (!!!).

He was, consequently, treated with various washes, caustics and baths for six months, to no effect. Finally a swelling appeared on the tibia, which was readily recognized as a syphilitic node; and on the administration of the iodide, without other treatment, the swelling on the ear disappeared.

Sulphurous Acid in Obstinate Otorrhœa.—In the Annales des Maladies de l'Oreille, du Larynx, etc., July, 1884, Dr. Woakes, of London, speaks very highly of the use of sulphurous acid in the treatment of those obstinate cases of otorrhœa which resist the use of boric acid. He refers to such cases as are associated with a certain roughness of the bony structures situated anywhere in the track of the discharge, whether in the external meatus, the annulus, the small bones of the ear, or the inner wall of the middle ear. He does not, of course, include such cases in which the necroses affect extensive parts of the temporal bone.

The strength he uses is one part dilute sulphurous acid (B. P.) and three parts water, which, after cleansing the ear, is to be warmed and poured into the meatus, and retained there for half an hour. The application is made three times a day. He recites two cases in support of his statement, but adds that he has used it for five years, and that the method has now become with him a routine practice. He adds that later experience has shown him that the prior removal of the granulations is not necessary, except in those cases in which the granulations are so exuberant as to obstruct the acid from the affected bone.

SUCCESSFUL OPERATION FOR DETACHMENT OF THE RETINA.—Dr. McGregor Robertson, of the Glasgow Ophthalmic Hospital, reports a case in the service of Dr. Wolfe in which complete detachment of the retina was successfully operated upon. The trouble is said to have begun about two years ago, and at the time referred to the blindness was complete. "He could not see the light of a lamp held before him in any direction." The operation consisted in laying bare the sclerotic by incising the conjunctiva and sub-conjunctival tissues, and then "puncturing" (query incising) the sclerotic in the line of the vertical meridian. In the instance recorded, the operation was performed twice, the second time at an interval of about six weeks from the first. The first operation is said to have afforded vision only in the outer half of the normal field, whilst the second operation is said to have restored the function of vision for the whole field. In the first operation a suture was used to unite the conjunctival wound, in the second no suture was used. According to the report which comes from the *British Medical Journal*, May 3, 1884, the patient could finally read Snellen's type 20 at a distance of 15 inches. Dr. Wolfe claims special advantage from the dissection of the conjunctiva and sub-conjunctival tissue before penetrating the sclerotic.

SOCIETY PROCEEDINGS.

GYNÆCOLOGICAL SOCIETY OF BOSTON.

Regular session, January, 1884.

The Society met for its annual meeting—the 16th year of its existence—upon the second Tuesday of January, and organized soon after 4 o'clock P. M. H. O. Marcy, M.D., was elected President, A. L. Norris, M.D., Vice President Henry M. Field, M.D., and W. S. Brown, M.D., were severally reëlected as Secretary and Treasurer, and H G. Harriman, M.D., was appointed Assistant Secretary. The committees of last year, upon membership, etc., held over.

Wm. G. Wheeler, M.D,, the retiring President, having positively refused a reëlection, in accordance with the requirement of the constitution of the Society, presented his annual address, his subject being, "A Question of Modern Wound-Treatment." The reader proposed in his remarks to illustrate a text from Ecclesiastes,—"That which hath been is now, and that which is to be, hath already been." A brief digest of the address follows.

Allusion was first had to the old-time treatment of subcutaneous wounds, and to what was indeed a practical antiseptic treatment centuries before Lister and his system was born. The strong styptics, then in use, and the actual cautery were as effective hæmostatics as was Ambrose Pare's ligature; and the heated pitch, with which leaking wounds and stumps were hermetically sealed, opposed as real obstacles to the entry of germs as anything that Lister has proposed.

The aspect which modern wound-treatment presents was first observed from the standpoint of ovariotomy and the removal of fibroids and tumors from the peritoneal cavity. Bryant, of London, Thomas, of New York, and others were quoted to the effect that the condition variouslv called puerperal fever and otherwise must, of necessity, imply the absorption of a poison into the blood. The laceration of the cervix, or of whatever part involving lesion of the mucous membrane, provides the open door; while the personal diathesis affords both soil and pabulum for future development. Here the reader paused for a moment to direct attention to the analogy existing between natural labor and a capital surgical operation. Look at the laceration of capillaries, veins, lymphatics, etc., at the placental site. It is not the result from operations done under a cloud of spray, but it is like a subcutaneous or submural wound, inflicted in the dark and, as it were, in nature's vacuum.

The earlier ovariotomists seldom allude to blood-poisoning as a sequel to their operations. Peaslee, in his work, reports six or seven cases treated by his method of drainage. Later, Sims proposed drainage through Douglass' fossa. He holds, by the way, the opinion that septicæmia may develop in a few hours, and death therefrom follow twelve to forty-eight hours after the operation. While approving of the drainage-tube in the main, the author was not sure that through this avenue even septic material might not, exceptionally, enter the system.

Dr. Wheeler further contended, 1st, that blood-poisoning may, and does, complicate low forms of disease; 2nd, that it is often a complication of ovariotomy, and a more frequent cause of death than was formerly supposed; 3rd, blood-poisoning increases the hazard, and has been properly considered a bar to surgical interference, with extra and intra-uterine fibroids.

Detailed reports of three cases closed the paper, the corresponding specimens being presented to the Society. The first was a uterine polypus of fibroid character. Septicæmia followed the operation, and recovery was very slow. In the second case—one of intra-uterine fibroid of size of a duck's egg—pyæmic poisoning complicated the effort at extraction, and death followed in fourteen days. The third case was of a monocyst, ovarian in character, of about three years' growth. Firm and extensive adhesions complicated its removal. On the fourth day septicæmia set in, which pursued a rapid course till the patient became comatose. On the eighth day from operation a fœtid fluid was evacuated by means of a catheter, and the traumatic cavity washed out. Thereafter the patient seemed as if brought back to life, and made a gradual recovery. In this case, as in the others reported, many points of interest have been omitted for want of space in making an abstract.

On call for pathological specimens, Dr. J. G. Pinkham, of Lynn, presented, with promise of fuller statement upon some future occasion, first, a uterine

polypus, probably myo-fibroma, of size of average white potato. A second specimen came from a suppurating ovary, which the doctor had removed last October, presenting one large cyst and several smaller ones. This specimen had not been disturbed since its removal, having been kept in a mixture of alcohol and carbolic acid. Had meant to bring, also, a specimen of the accompanying fluid, fifteen to twenty pounds of which had been drawn off. It was of a thick, pea-soup character, containing a yellow sediment apparently largely made up of pus cells, supernatant liquid being transparent and looking like glue.

Dr. A. P. Clarke asked about the fibroid. Reply: It came away spontaneously at last. Patient had consulted Dr. Warner, of this Society, 10 years ago, and, having profuse and exhausting hæmorrhages four years later, had then consulted himself. Had expected to do nothing beyond palliation. Last February she began to have expulsive pains, which still continuing at intervals, in July Dr. P. proposed and did an operation. Patient at present has symptoms which look as if another tumor was forming.

In reply to further questions, Dr. P. continued: The tumor was removed by ecraseur. It being hard to pass the chain, he resorted to a modification of the usual instrument, consisting of an apparatus of copper wires and fish-line, which he described. The mass so filled the vagina that it was very difficult to get at the upper part of the tumor and its attachment.

Dr. Wheeler remarked on the great trouble in such cases in getting the chain around the pedicle, as was necessary to be done for the success of the operation.

Dr. Nelson remembered that Dr. Marcy had previously shown the specimen of a uterus removed by abdominal section. He (Dr. N.) would now offer to the consideration of Fellows slides containing microscopic representations of this part removed by frozen section, which specimens were duly examined and discussed by gentlemen present.

The committee appointed to prepare and present resolutions expressive of the loss sustained by the Society in the recent death of Dr. Marion Sims, an early honorary member, and the eminent respect in which he was held, hereupon reported, and upon vote, the resolutions were declared approved, and the Secretary was instructed to have them properly written out, that a copy might be sent to the family of the deceased.

Dr. W. S. Brown was hereby led to remark upon the eminently democratic character of English medical societies. On the other hand, and by strange and unexpected contrast, American societies were prone to be exclusive. The late Dr. Sims was everywhere and always an enemy to exclusiveness; he would make all medical organizations of that democratic character that is in keeping with our political institutions. This was his original and constant policy, and most earnestly urged upon its management in the formation of the American Gynæcological Society, but his policy did not prevail.

The annual report of the Treasurer showed the Society to be in prosperous condition pecuniarily. The annual lunch was then discussed, after which Society adjourned.

CHICAGO MEDICAL SOCIETY.

Stated meeting, July, 1884. Dr. D. A. K. Steele, President; Dr. L. H. Montgomery, Secretary.

The meeting was well attended, and the papers read and cases presented were interesting and important. But owing to the crowded state of our columns at this time, we are constrained to greatly abridge the report which the Secretary has kindly furnished to us.

The first report was in reference to a case of pyosalpynx, by Dr. Franklin H. Martin. The patient was a married woman, aged 27 years, weighing 200 pounds, never having borne children, but had one abortion at three months, four years since. Little more than one year since she began to complain of morning sickness, some enlargement of her breasts, pains in her back, and other symptoms which caused her to think she was pregnant, although she continued to have a moderate menstrual flow at each regular period. After several examinations without making a satisfactory diagnosis, the patient was anæsthetized, and the contents of the pelvis and abdomen thoroughly examined.

The uterus was found of small size, and closely pushed against the neck of the bladder and pubes by a tumor of considerable size occupying the posterior peritoneal cul-de-sac. But the nature of the tumor was not satisfactorily determined. The patient, however, continued to suffer so much from pain in the back and sickness, that Dr. Martin undertook an operation for the removal of the tumor by abdominal section, as in ovariotomy.

After entering the abdominal cavity the tumor was found to consist of a great dilatation of the left fallopian tube, the walls of which were so thickened as to render fluctuation obscure, but a needle puncture proved the contents to be purulent. The exterior of the tumor, however, was so extensively adherent to the intestines and adjoining parts as to render its removal impracticable. Consequently, Volkman's method was adopted. The anterior wall of the tumor was stitched to the peritoneal edge of the lower part of the abdominal incision for a distance of about three inches, and this part of the wound left open, while the rest was closed with sutures and covered with antiseptic dressings. In a few days, adhesions having taken place between the tumor and the peritoneal margin of the wound, the former was freely opened and a large quantity of pus discharged. The cavity was washed out with a 2 per cent. solution of carbolic acid, free drainage maintained, with antiseptic dressings, and the patient made a good recovery. Some remarks were made in regard to the case and its management, by Drs. J. H. Etheredge, H. P. Newman, A. H. Burr, and L. L. McArthur.

Dr. S. W. Wetmore read a paper on "The Rational Treatment of Fracture of the Clavicle," illustrating it by adjusting his appliances to an assistant. The writer presented nothing new, but gave good descriptions of the methods devised and practiced by Drs. E. M. Moore, of Rochester, N. Y., and Lewis A. Sayre, of New York, respectively, making judicious comments on their relative advantages and dis-

advantages. The paper elicited remarks from Drs. R. W. Bishop, C. E. Webster, W. L. Axford, D. A. K. Steele, A. B. Strong, L. H. Montgomery, and W. H. Curtis.

The remainder of the evening was occupied by Dr. Jefferson Bettman in the reading of a carefully prepared paper on "Rhinolithiasis," embodying an interesting case which had occurred under the observation of the writer. As the paper will soon appear in full in this journal, it is not necessary to give an abstract here.

After some remarks by Dr. F. O. Stockton, the Society adjourned.

MASSACHUSETTS MEDICAL SOCIETY.—PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—ADJOURNED SPECIAL MEETING.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY, AND HYGIENE.

ALBERT N. BLODGETT, M.D., SECRETARY.

May 21, 1884. Meeting called to order at eight P.M., Dr. R. T. Edes in the chair.

The Secretary read a communication which he had received from the Boston Society of Arts, inviting this society to attend a meeting of that body at the Massachusetts Institute of Technology to listen to a description of the system of heating and ventilation which has been adopted in the New Building of the Institute, and which possesses many points of interest, some of which are novel.

The chairman then introduced the subject for this meeting, which was the continuation of the discussion upon the Epuration of Sewage by Irrigation and Agriculture. See Journals for July 26, and August 2, 1884.

Mr. Eliot C. Clarke was first called on, and spoke as follows: "Much has been said lately of the successful disposal of sewage at Pullman, Ill., by land irrigation. It affords almost the only instance in which it is claimed that pecuniary profit has attended such a method of disposal. I have recently visited this sewage farm, and the result of my observations there may be interesting to the Society.

Land irrigation was adopted at Pullman, not with the hope of profit, but from necessity, there being no other practical means of getting rid of the sewage except at enormous expense. House sewage only, of which there is a daily supply of about 200,000 gallons, is disposed of by irrigation. Rain and water used for mechanical purposes are not mixed with the sewage proper but are discharged into Calumet Lake.

The whole sewage farm consists of 1,500 acres of flat prairie, situated within two miles, or less, of the town. Of this area, however, only 150 acres were used last year in purifying and utilizing the sewage, the remainder being held for future use, or cultivated without the application of sewage. The soil is a rich loam underlaid by sand. The portion to which sewage is applied is all underdrained by pipes about six feet below the surface. About ten acres are prepared as filter beds, being more carefully underdrained than the rest, and this tract disposes, by filtration, of the sewage at such times as the crops need none or would be injured by it.

The crops to which sewage is furnished are chiefly celery, cauliflower, cabbage, and other kinds of garden produce which flourish with a copious supply of water. The sewage is only applied to them at such times and in such quantities as is beneficial, principally in the morning and evening, during dry weather. Some crops, as potatoes, never receive any sewage since it is found to injure them. The superintendent, Mr. Martin, thinks he gets earlier and better vegetables than he would from land that was not irrigated. He also believes (without special opportunities for comparison) that the crops do better with sewage than they would if simply irrigated with pure water, that is, that the sewage acts somewhat as a manure. It is evident, however, that it does not act as other manures do since he finds that it injures his land to apply sewage to it longer than for one season. After one season's application the sewage should be omitted for one year and the land, instead, enriched with barn-yard manure.

The profit last year from sale of crops grown on that portion of the farm irrigated with sewage was about $5,000. The superintendent thinks that, had it not been for early frosts, the profit would have been $7,000. In calculating this gain, however, no charge was made for rent of the land or for interest on the cost of draining and otherwise preparing it, or for the machinery and other plant necessary to raise and convey the sewage to the farm, or for fuel and attendance on the pumping engines. These items would have largely exceeded the calculated profit, so that had it been possible to discharge the sewage by gravity into some neighboring body of water it would have been much cheaper to do so.

Under the circumstances the result is very satisfactory. The town gets rid of its sewage without creating any nuisance. No trouble has been experienced in winter. During very cold weather an inch or so of ice forms on the surface of the filter beds, but the ground beneath remains open and the sewage soaks away. Thus the primary object of the farm, which is to get rid of the sewage at all times, is satisfactorily accomplished, and, in addition, the land is cultivated, and the value of the crops produced exceeds the cost of cultivation.

While the result at Pullman is encouraging for those towns which are compelled to purify their sewage on land, there is nothing in it to commend sewage farming to towns which can discharge into water without doing any harm thereby. The conditions for sewage farming would rarely be so favorable as they are at Pullman. At that place a comparatively small amount of sewage is to be disposed of, and close at hand is available an abundance of cheap but rich farming land, perfectly flat, and with soil especially adapted to the purpose.

In Boston the territory south of Charles river fur-

nishes, in dry weather, one hundred times as much sewage as Pullman. If the same ratio between acreage and sewage were preserved, Boston would need a farm of 15,000 acres, an area as large as the city proper, South Boston, Dorchester, Roxbury, Brookline, and Brighton. It is needless to say that no such area suitable for the purpose can be found within accessible distance.

The sewage of Pullman is about three times as dilute as Boston sewage, but otherwise appears to be of the same material. It is allowed to flow on to the land each morning and evening unless rains occur, when it is not used so frequently.

The effluent water is clear and free from smell or taste, and fish are found at the outlet of the filter beds, which is considered possible only in pure water. At the opening of the sewers there is a perceptible odor, but it is the smell of fresh sewage, and not that of decay or decomposition. The superintendent of the farm resides at a short distance from the filter beds, and suffers no inconvenience from their proximity to his dwelling, and his family have never been afflicted with any disorder attributable to that cause. The centre of the farm is between one and two miles from the centre of the city.

Dr. Faxon stated that he had listened with much satisfaction to the discussion, but that one element existed in American sewage which was not found in that of any European system. The sewage of every American city is loaded with tons of grease, which materially interferes with its utilization in the same manner as is followed in other countries. The greasy contamination forms a solid crust in the upper layers of the soil, which the roots of plants cannot penetrate. The Pullman farm is far from representing the actual results of such a system in its more extended adoption. The sewage from Boston is at present discharged into tidewater, but the nuisance of sewage pollution is not removed. A certain portion of Boston sewage comes to the shores of Quincy Bay, and is already creating a nuisance along the beach in that vicinity. From the windows of the Sailors' Home at that place can be seen a layer of sewage many acres in extent upon the surface of the water between that point and the neighboring islands. As summer approaches the sludge becomes more abundant, and is thrown up on the shore, where its stench becomes intolerable. Some other method than the present must ultimately be adopted for the disposal of the sewage of Boston.

If an engineer were requested to designate a perfect system of sewerage it is quite impossible to say what method would be recommended, but at present, everything taken into consideration, filtration seems to be the most available method known.

In reply to Dr. Faxon, Mr. Clarke said: "This is the first intimation I have had that the sewage works at Moon Island create any nuisance or are likely to. Those who live on the island experience no discomfort. I have seen some sludge about the outlet, and there are places on the works where one can get the odor of sewage. That was to be expected. The sewage which is discharged at Moon Island formerly emptied at fifty outlets in Boston, and made fifty nuisances close to residences, places of business, hospitals, bathhouses, etc. It has not been changed to cologne water by being diverted to Moon Island. But I do not believe that any nuisance will be created there which can possibly effect any one not living on the island.

Although a little of the sewage may deposit near the outlet, almost all of it goes out of the harbor. It follows an unvarying course between Long and Rainsford Islands, and none of it ever turns into Quincy Bay. Its outward course can be distinctly traced for about a mile, but at a little greater distance from the outlet the dilution with salt water is so great that all trace of the sewage is lost.

Dr. Marcy inquired of Dr. Faxon the reason why he believed the fatty matter of sewage caused the soil to mass together and thus, as stated, prevent the penetration by the rootlets of plants. Dr. Marcy questioned if this could really be true since the fatty materials of sewage are chiefly animal, and it is well known that these rapidly and easily undergo fermentation and decomposition, setting free the fatty acids at ordinary temperatures. Thus these compounds taken to pieces by the action of the bacteria and fitted to serve as plant food. Dr. Marcy inquired as to filtrative power of the soils as shown in the experiments of Dr. Faxon and at the Woman's Prison, saying we must bear in mind that for about six months of the year in our latitude there is very little vegetation, and provision must be made for winter sewage. Contrary to the usual belief, sand makes a most unreliable filter.

Mr. Edward S. Philbrick, C.E., spoke as follows: The subject under discussion is a very broad one, and I shall therefore limit myself to the question of applying the sewage of Boston to irrigate the soil. While not wishing to be understood as opposing the system of irrigation by sewage in general, and while recognizing the importance of making strenuous efforts to prevent the pollution of water supply by a reckless discharge of sewage into natural water courses,[1] I will refer to some of the obstacles which tend to render sewage irrigation a difficult plan for this city.

The money value of the solid and dissolved ingredients of sewage has been urged by many persons who have investigated the subject. Many skilled investigators have devoted their attention to this question, particularly in Europe, within the past ten years, and we have much information from that source as from the experiments made by European towns in the disposal of their sewage by irrigation.

But the money value of the ingredients of sewage is by no means the only questions of importance in the consideration of its disposal. It has often been found in developing mines that the number of pounds of copper or silver in a ton of ore, as determined

[1] It seemed to me that Dr. Barnes has informed himself chiefly by *reading*, and that his reading has embraced only one side of a question which has been attended with a very warm *partisan* discussion in England lately. I hope its discussion here may be more deliberate and of a broader character. One thing is certain in my mind, namely, that it is a *local* question very largely, and that *patent systems* are no more likely to be widely applicable in our profession than in your own, and for similar reasons.

in the laboratory by assay, is but a poor guide in deciding upon the value of the ore or the mine. We must also know what it costs to stamp, wash, smelt the ore and refine the metal that exists in that ore before its commercial value can be established. So in the disposal of sewage by irrigation it has often been found impossible to recoup the cost of the process by the product of the farm. The disposal of the sewage in some *innocent* way is necessary to the welfare of the community, so that for sanitary reasons such a course may often be the very best, though no source of profit, simply because it is the cheapest way of getting rid of a dangerous material; but it should not be regarded as likely to be *profitable* as a commercial undertaking, except under the most favorable circumstances.

The difficulties met with are such as these: Plants that are useful as farming products do not tolerate a constant saturation of the soil they grow in. Therefore a sufficiently large area of soil must be treated to allow of applying the sewage on alternate fields, so that one may be receiving it while it is soaking away on the other. Even then we find that the plants which need a copious supply during a certain stage of their growth need much less at other stages when approaching maturity. We find, too, that the crops which are benefited by a large quantity of fluids in a dry month would be destroyed if an equal amount were put on the land in a rainy month. Now since the flow of sewage from any city is likely to be rather more copious in a rainy period than in a dry one, even though pains may be taken to exclude the rainfall from the sewers, the crops are often drowned with sewage at one time while getting barely enough to supply their wants at another. For this reason those sewage farms have been most successful where the farmer was not obliged to take the *whole flow* but merely what he desired from time to time,[1]

In order to make sewage irrigation successful the land must be located favorably, must not be too steep in its declivities, and must be had at low rates of cost, that is, consistent with prices paid for other farm lands. Such a surface is not easily found near Boston.

However great the advantages of irrigation may be to certain crops, it is not so applicable to hoed crops as to the grasses, for the reason that irrigation puddles the surface, which unless very sandy, cakes and hardens when drying, requiring frequent hoeing to pulverize the soil. Therefore it has been found that Italian rye grass is the best crop for sewage irrigation. But this is a crop which is poorly adapted to our climate and is of little value except for soiling cattle. Moreover we have in this climate at least six months of every year when no such crop can be grown, while the flow of sewage is continuous during the year.

(*To be continued.*)

[1] The success of the Gennevilliers sewage farms, as I am informed, is attributable to this fact, that the delivery of sewerage to the farmer was at his option and not obligatory Such a system can never be a reliable source of relief to a town so long as any considerable portion of its sewage flow is liable to be left undisposed of in a wet day.

STATE MEDICINE.

MICHIGAN STATE BOARD OF HEALTH.

Reported for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

The regular quarterly meeting of the Michigan State Board of Health was held in the office of the Board at Lansing, Mich., July 8, 1884, the following members being present: John Avery, M.D., of Greenville, President: C. V. Tyler, M.D., of Bay City; Henry F. Lyster, M.D., of Detroit; J. H. Kellogg, M.D, of Battle Creek; Victor C. Vaughan, M.D., of Ann Arbor; Arthur Hazlewood, M.D., of Grand Rapids; and Henry B. Baker, M.D., Sec'y.

The Secretary presented a report of four outbreaks of cheese-poisoning in Michigan during May and June, namely, at Middleville, Barry county, Jerome and Jonesville, Hillsdale county, and Big Rapids, Mecosta county. All persons who ate of the cheeses were taken sick, (in all about one hundred and sixty-four persons), with the same symptoms, i.e., pain and burning sensation in stomach, intense vomiting and purging, feeble pulse, cold extremities, and tendency to collapse. All finally recovered. The cheeses were ordinarily good looking samples, but when cut or broken a liquid oozed into the pores. In each case the cheese was made at the factory of G. B. Horton, Fruitridge, Lenawee county, Mich.

Dr. V. C. Vaughan, committee on foods, also read a report on cheese-poisoning. At the request of the Secretary, he had visited the factory at Fruitridge, and had analyzed specimens of the cheese. Everything about the factory appeared to be scrupulously clean, and nothing in vats, cans, or surroundings offered any explanation of the cause of the poisoning. Analysis showed no arsenic, copper, lead, iron, or other mineral poison. When the cheese was cut or broken, a whitish liquid oozed into the pores, and in this liquid microscopic organisms were detected. The liquid was very strongly acid. For more than 100 years the attention of the scientific world has been drawn to the subject of cheese-poisoning by repeated outbreaks of this sort in this country and in Europe. Much has been written on the subject, and many investigations carried on, especially in Germany. It has been variously ascribed to diseased milk, decomposition and the development of certain fatty acids, etc., but we do not yet know what makes the cheese poison. The manufacturer said the cheese which produced the ill results, was all made between April 26 and May 26, 1884. It was made in the same manner and with the same care as other lots which had given no cause for complaint. Good cheese is only very slightly acid, and slowly reddens blue litmus paper. The poisonous cheese was intensely acid, instantaneously reddening blue litmus, when the paper was applied to the freshly cut surface. This test for poisonous cheese appears to be practicable. The blue litmus paper could be applied by any grocer to each freshly cut cheese. If the litmus paper is instantly turned red by the liquid which oozes into the pores, the cheese is to be suspected as poisonous.

Dr. Vaughan's report will be published in the next annual report of this Board.

The Secretary reported that small-pox was brought into Rose Lake township, Osceola county, Mich., June 9, 1884, by a German immigrant who with wife and three children, landed in New York, June 4, by steamer "Weser," "Weiser," or "Wieser." The immigrant says that on the passage over, there were on that vessel three deaths from small-pox, and several cases that recovered. The immigrant was taken sick June 13, and was attended by Dr. Bettes, of Le Roy village, in the adjoining township of Le Roy, who could not know the true nature of the disease till the eruption took place, soon after which Dr. Bettes himself came down with the disease and has since died. The health authorities of Le Roy village had neglected to appoint a health officer as the law requires, because they thought they would "save a health officer's salary by doing without one." Dr. W. J. Law was then appointed health officer and he seems to have done very efficient work, as did also Mr. Bryan Monaghan, health officer of Rose Lake township. The townships of Rose Lake and Le Roy united in the construction of two hospitals, which were built June 29. At last report there were ten (10) cases in the hospitals, five cases at Tuston, and one at Cadillac.

This outbreak is another illustration of how Michigan and the Northwest suffer from a lack of a careful immigrant inspection service, such as was planned by the National Board of Health, and for a time carried on, but discontinued for want of an appropriation.

The chairman of the special committee appointed to examine the sanitary condition of Washtenau and Jackson county jails, read their reports which were ordered printed in the annual report of the Board for 1884.

Owing to the spread of Asiatic Cholera in Europe and the liability of its introduction into this country at any time, it was decided to issue a circular to local Boards of Health on the prevention and restriction of cholera.

The next regular meeting of the Board will occur Oct. 7, 1884, instead of the second Tuesday in Oct., which would be its regular time.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, July 4, 1884.

Dr. Debove has recently introduced a new treatment for simple ulcer of the stomach, based on the pathogeny and the anatomical lesions of this affection. Simple ulcer of the stomach was for a long time considered to be of a tuberculous origin, then cancerous, typhic, and even dysenteric. Later on, it was attributed to inflammation of the mucous membrane of the stomach, which opinion was evidently more correct than the preceding. Finally, Rokitanski enunciated a theory which is now in vogue, as it better explains the nature of the disease, and thus leads to a more rational system of treatment. According to Rokitanski's theory, the ulcer in the stomach would originate in the disturbance of the circulatory system in a circumscribed portion of the mucous membrane of that organ, which would weaken its vitality to such a degree as to allow itself to be destroyed by the gastric juice. The form of the circulatory trouble would be a sanguineous stasis, or a hyperæmia, or a thrombosis, or an embolism. In other words, the process would be a simple digestion of the stomach by itself, or what may be termed local autophagia. Acting on these premises, Dr. Debove has adopted the following treatment in simple ulcer of the stomach. Having learned by experience that the introduction of large quantities of fluid, such as milk with or without lime-water or Vichy water, which up till now constituted almost the only remedy in the treatment of this affection, was often attended by the inconvenience of producing dilatation of the stomach of a more or less permanent character, Dr. Debove thought the enormous quantity of milk (5 or 6 litres) which the patient was obliged to absorb daily, might be considerably reduced in substituting some kind of liquid food, rich in nitrogenous substances. Starting on this principle, the beau ideal of Dr. Debove in order to obtain complete cure of simple ulcer of the stomach, would be to suppress for a time the secretion of the gastric juice, or rather to neutralize it by the action of alkaline substances, and thus render it inert. The following is his mode of procedure: During the first few days, he washes out the stomach so as to remove from it the acid and mucous secretions it may contain. He considers this operation absolutely inoffensive, so long as it is performed with a soft sound, so as to avoid perforation in case of the end of the sound coming in contact with the ulcer. He then administers three times a day a mixture composed of 25 grammes of meat powder diluted in milk, to which is added 10 grammes of bicarbonate of soda. This is introduced each time through the sound, on account of its disagreeable taste. Dr. Debove has never observed any bad effects from the large quantity of the soda, 30 grammes (nearly an ounce), daily, or, if there be any intolerance, the dose may be reduced and combined with calcined magnesia.

One of the principal advantages of this mode of treatment is to avoid dilatation of the stomach so apt to be produced by the ingestion of large quantities of fluid, taking into consideration the altered condition of the parieties of the stomach. Moreover, it is difficult to get patients to submit to a milk diet exclusively, which they are to take in small and frequent doses, hence the utility of an aliment more substantial and less bulky, which at the same time should be of easy digestion. This treatment, according to Dr. Debove, should not prevent the employment of other remedies as are usually adopted in cases of hæmatemisis, such as ice, tincture of iodine, the perchloride of iron, etc.

I have given the above description of Dr. Debove's treatment of simple ulcer of the stomach, but must leave it to your readers to judge of its advisability or practicability in such cases.

The epidemic of cholera which has been raging in Toulon for the last fortnight is the all-absorbing topic of the day, but the doctors are at variance as to whether it is the true Asiatic or sporadic cholera. At first the opinion was divided among the medical men at Toulon, but as the malady progressed they found reason to alter their opinion, and now consider that they have to do with the true Asiatic cholera or cholera morbus, which, however, is much less malignant than preceding epidemics. Drs. Brouardel and Proust, members of the Council of Hygiene in Paris, were despatched to Toulon to investigate the real character of the disease. On their arrival there they were inclined to look upon the disease as of a sporadic type, but soon after they too found it necessary to alter their opinion, and have pronounced it to be the Asiatic cholera. Both these gentlemen have since returned to Paris and read their report before the Council of Hygiene and at the Academy of Medicine in which they expressed themselves to the same effect. Dr. Fauvel, however, who was referred to as a high authority on the subject, persists in the opinion he has all along held, that the epidemic at Toulon is none other than sporadic cholera. Unfortunately for Dr. Fauvel, he has great odds against him, and however high he may stand in the profession, particularly as regards the subject of cholera, his opinion in the present case is considered of little value, as he has not visited any of the patients stricken with the disease. A discussion has been broached at the Academies of Medicine and Sciences on the subject, which promises to be very interesting, and we shall see whether Dr. Fauvel or his adversaries are in the right. Meanwhile the disease is dying out, and it is to be hoped we shall soon hear the last of it. The disease seems limited to Toulon and its suburbs, although a few cases have occurred at Marseilles. There is nevertheless a great panic, and the inhabitants from those quarters are daily flying away in all directions to escape contagion.

Dr. Bishop, an English physician who had been for many years in practice in Paris, died suddenly on the 23rd June, it is supposed from disease of the heart.

Dr. Moreau, better known under the designation of Moreau de Tours, to distinguish him from the other Moreaus in the profession, died at his residence in Paris on the 26th June, aged 81 years. He was an eminent alienist, and was pupil of the celebrated Esquirol. He took his degree in 1830. In 1840 he was nominated physician to the Bicetre asylum, and subsequently to the Salpetrière, to which he had been attached for many years.

Dr. Koch, the eminent biologist of Berlin, has just passed through Paris for Toulon, on the same mission that took him to Egypt and to India, to study the pathogeny of cholera. Dr. Koch will there find his French co-workers, Drs. Strauss and Roux, in the same field, who belonged to the Pasteur mission to Egypt.

B.

NECROLOGY.

FRUITNIGHT, WM., New York City,—born of German parents in New York City, April 20, 1858. His education was obtained in the public schools of his native city, where he passed the various grades, graduating from the Grammar department, entered the College of the City of New York, where he was graduated A.B. in the class of 1878. He then entered upon the study of medicine with his brother, Dr. J. Henry Fruitnight, and Dr. C. A. Leale, subsequently with Dr. J. E. Winters and at Bellevue Medical College, where he received his M.D. in 1880. Subsequently he successfully passed a competitive examination for an appointment on the staff of Bellevue Hospital, where he served out his full term.

While in that service he never wavered in the fulfillment of any professional duty which he was called upon to face, and yet his convictions were always superior to formally expressed rules of action, wherefore he was often guided by the dictates of his own conscience, even though they might conflict with such prescribed regulations.

While there, when he had charge of the erysipelas pavilion he greatly overtaxed himself, like many of his predecessors he became a victim to septic infection, which most probably led to the ultimate cause of his early death. After leaving the hospital he became associated in practice with his brother, Dr. J. Henry Fruitnight, at 259 W. 54th st., and was rapidly securing a growing and extended practice, particularly in obstetrics and gynæcology.

For a short time he was associated with Prof. W. G. Wylie in the N. Y. Polyclinic, in the department of Diseases of Women. He was for a short time associated with Prof. Louis Elsberg in the department of Laryngology at the same institution. He was associated with the St. Elizabeth Hospital in W. 31st st. He was a member of the Council of Bellevue Hospital Medical College, Alumni Associations, Northwestern Medical and Surgical Society, in whose meetings he always took active part, participating in all the scientific discussions; Empire City Council of Royal Arcanum No. 557, of which Council he was medical examiner. While he was studying medicine he taught in several of the evening schools of the city. His death was very sudden, occurring at his late residence on Sunday, July 20, 1884, at 11 o'clock A. M.

He had fulfilled arduous professional duties the day before. On the evening preceding his death he had a very difficult and complicated case of instrumental labor which caused him much anxiety and great expenditure of physical force. The cause of death was cerebral thrombosis sequel to pachymeningitis.

His obsequies were held at the residence of his brother on Tuesday evening, July 22, Rev. Dr. J. D. Wilson officiating. His remains were interred at Woodlawn Cemetery on the following day, in the presence of his family, a circle of friends, and a delegation from the Northwesthern Medical and Surgical Society, and Empire City Council of Royal Arcanum.

E. C. H.

Walker, Clement Adams, M.D., born in Fryeburg, Maine, July, 1820, died in Boston, Mass., April 22, 1883. He graduated A. B. at Dartmouth College in 1842, with a class somewhat remarkable for the large number that have attained distinction. Delicate health compelled him to travel before taking his medical degree. He graduated M. D. from the medical department of Harvard University in 1850, and at once received an appointment in one of the public institutions in South Boston. Epidemics of cholera and ship fever having broken out soon after in Boston, he was among the first to volunteer his services and went to Deer island, in the harbor, and labored assiduously in the care of the sick. In 1851, he was appointed Superintendent of the Lunatic Asylum in South Boston, and, after thirty years' service resigned in January, 1881, on account of ill health. He was conspicuous for his kindness of heart and deep sympathy, making the insane feel that he was their personal friend, and in their treatment, besides the resources of the medicine, he had this requisite of success, that he was able to inspire them with the belief that they would get well. He was the first superintendent in this country to abandon the use of cells in the treatment of the insane, and was earnest in improving the old and in devising new methods for treating this class of patients. He was an unwearied worker, a kind friend, and a judicious adviser in hundreds of families where mental sickness brought sorrow. He was recognized as an able expert in mental diseases, and was of that judicial cast of mind that made his opinion valuable in matters relating to the complicated questions arising in his specialty. As a writer he was remarkable for terseness and perspicuity. Dr. Walker was one of the original members of the American Association of Superintendents of Hospitals for the insane, and for the last three years was its president, and from it was a delegate to the International Medical Congress, Philadelphia, 1876; a member of the New England Psychological Society of the South Boston medical club; of the Massachusetts Medical Society; and of the American Medical Association. He leaves a widow and three sons.

John H. Gilman, M.D.

Lowell, Mass., July 15, 1884.

MISCELLANEOUS.

THIRD INTERNATIONAL OTOLOGICAL CONGRESS.

We are in receipt of the programme of the Third International Congress which meets at Bâle, Monday, Sept. 1, 1884. The congress commences with a Rendezvous of Welcome, on Sunday, Aug. 31, and concludes with an excursion to the Lake of the Four Cantons, on Friday, Sept. 5, 1884. The work of the Congress is divided into three sections: I, Anatomy Normal and Pathological; II, Physiology, Methods of Examination; III, Pathology and Therapeutics.

We are surprised to find that among the communications promised, not a single name from America appears. In the department of Anatomy all of the contributors are Germans; in Physiology, Paris and Naples are represented, whilst in Therepeutics contributors from various countries promise communications, practically America alone being silent.

OFFICIAL NOTICE.

Annual Dues from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the Journal of the Association for one year.

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According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

Richard J. Dunglison, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department United States Army, from July 26, 1884, to August 1, 1884.

Head, Jas F., Colonel and Surgeon, ordered to Portsmouth, N. H., to meet the Greely party, and consult upon the proper course of treatment, with a view to the entire restoration to health of Lieut. Greely and the men of his command. (S. O. 177, Par. 14, A. G.O., July 30, 1884.)

Wright, Joseph P., Major and Surgeon, sick leave of absence extended three months on surgeon's certificate of disability. (By Par. 12, S. O. 176, A. G. O., July 29, 1884.)

McElderry, Henry, Captain and Assistant-Surgeon, so much of par. 12, S. O. 165, A. G. O., July 16, 1884, as assigned him to duty in Dept. of the East, is revoked, and he is ordered to report in person to the Surgeon-General of the army for duty in connection with World's Industrial and Cotton Centennial Exposition at New Orleans, La. (Par. 12, S. O. 173, A. G. O., July 25, 1884.)

Finley, J. A., Captain and Assistant-Surgeon, granted leave of absence for one month, with leave to apply for one month's extension, to take effect about September 1, 1884. (Par. 2, S. O. 91, Hdqrs. Dept. of Texas, July 22, 1884.)

Reed, Walter, Captain and Assistant-Surgeon, relieved from duty at Fort Sidney, Neb., and ordered for duty as post surgeon, Fort Robinson, Neb., relieving Assistant-Surgeon Henry McElderry, U. S. A. (Par. 2, S. O. 62, Hdqrs. Dept. of Platte, July 22, 1884.)

Benham, R. B., First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Brown, Texas. (Par. 1, S. O. 90, Hdqrs. Dept. of Texas, July 19, 1884.)

Gandy, C. M., First Lieutenant and Assistant-Surgeon, granted leave of absence for one month, to commence between August 15 and 30, provided he furnish medical attendance at Fort Brady, Mich., during his absence. (Par. 5, S. O. 154, Hdqrs. Dept. of East, July 30, 1884.)

List of Official Changes in the Medical Corps of the Navy, for the Week Ending July 26, 1884.

P. A. Surgeon G. E. H. Harmon, ordered to temporary duty at Norfolk Navy Yard.

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ORIGINAL ARTICLES.

THE TREATMENT OF HYDROPHOBIA, HISTORICALLY AND PRACTICALLY CONSIDERED.[1]

BY CHARLES W. DULLES, M.D., OF PHILADELPHIA.

Fellow of the College of Physicians, and of the Academy of Surgery of Philadelphia.

The history of medicine can be traced back, more or less obscurely, to a period about 1200 years before the Christian era to whatever real or fabled healer may have been the foundation of the myth of Aesculapius, yet Aristotle, who lived from 384 to 322 B. C., is the first writer, whose works are extant, by whom we have distinct mention of the subject of hydrophobia. His reference to it has given rise to much discussion, because it does not accord with what is commonly believed about it, but there can be no doubt that he spoke of what is now known by this name. His expression is: "Dogs are subject to three diseases. These are called lyssa, cynanche and podagra. Of these lyssa causes mania, and whatever is bitten (*ὅταν δάκῃ*) all those bitten go mad except man. (*λυττῶσιν ἅπαντα τὰ δηχθέντα πλὴν ἀνθρώπου*).[2] This disease seizes on dogs and whatever is bitten by a mad creature except man."

But we have also references to the sayings of earlier physicians about hydrophobia in the works of those who followed them. Thus we learn from Pliny,[3] that Epicharmus, who is supposed to have died about 450 B. C., not only was familiar with the disorder, but also praised the use of the wild cabbage in its treatment. Following him we find Democritus, who was born about the time that Epicharmus died, speaking of it as an inflammation of the nerves.[4] Eudemus, who lived in the third century B. C., is quoted by Dioscorides[5] as declaring that a certain one had escaped the disorder; while Themison, who lived from 63 B. C., to 25 A. D., is said to have contracted the disorder while attending a friend, and to have escaped only after great suffering.[6]

However, the first account of hydrophobia in man which corresponds to the ideas of modern times is that given by Celsus, who speaks briefly but appreciatively of its horrors, calling it "miserimum genus morbi," and gives some excellent advice in regard to its treatment. He advised cupping the wound, cauterizing it—if it be not in a nervous or muscular part—and the use of emollient dressings. If the actual cautery cannot be applied, he says, "bloodletting is not unsuitable." When the symptom of a dread of water was fully developed, he declared the only remedy was to cast the unsuspecting patient into a pond, where, if he could not swim, he was now to be allowed to sink, and thus compelled to drink and again lifted up; while, if he could swim, he was to be pushed under again and again, until, even against his will, he was filled with water. For the shock which might result, he advised placing the patient afterward in a bath of warm oil.

This heroic method is said by Dr. Arnold[7] not to have been original with Celsus, but copied from some of the older physicians—an assertion which seems reasonable in view of certain expressions of Cælius Aurelianus.

Not long after the time of Celsus, Pliny the Elder (b. 23 A. D.—d. 79 A. D.) published his famous Natural History, already referred to, in which he seems to have collated, with the utmost impartiality, all the reasonable and unreasonable ideas of his time in regard to a great variety of subjects. Among these, those about hydrophobia are not the least interesting, nor the most absurd. To the wound made by the bite of a mad dog, he suggests the application of raw veal. Some, he says, prefer (as a preventive of the hydrophobia) a he-goat's liver, or a she-goat's dung, with wine, or the dung of the badger, cuckoo and swallow, boiled and taken in drink. (Book xxviii, 43.) The ashes of river-crabs, he says, are good when the symptoms of the disorder appear. (Book xxxii, 19.) He praises, also, the ashes of the tail of a shrew-mouse, if the animal has survived and been set at liberty; a clod from a swallow's nest, applied with vinegar; the young of a swallow reduced to ashes; or the skin or old slough of a serpent that has

[1] For bibliography of the subject, see paper on "The Disorders Mistaken for Hydrophobia" in Transactions of the Medical Society of the State of Pennsylvania, for 1884.

[2] Aristotelis Opera Omnia quæ extant. Græcè et Latinè. Authore Gulielmo Du Val. 2 vols., folio. Lutitiæ Parisiorum, 1629. Historia Animalium, lib. viii., cap 22.

[3] Pliny; Caius Plinius Secundus. Natural History. Translated by Bostock & Riley. 6 vols. 12mo. London, 1855. Chapter xx.

[4] Aromatarius, Josephus de. Disputatio de rabie contagiosa. 8vo. pp. 96. Venetiis, 1625. Pas 1, particula 9, p. 12.

[5] Pedanniî Dioscorides Anarzarbei de Materia Medica Libri V. 2 vols. 8vo. Lipsiæ, 1829, 1830. Vol. ii, p. 59.

[6] Dioscorides, loc. cit.

As the passage referred to is sometimes misunderstood, I will give it here in full. "Sed unicum tamen remedium est, nec opinantem in piscinam non antè ei prouisam proijcere, et si natandi scientiam non habet, modò mersum bibere pati, modò attollere: si habet, interdum deprimere, ut inuitus quoque aqua satietur. Sic enim simul sitis, aquæ metus tollitur." Celsus, Aurel. Corn. De Arte Medica libri octo Basiliæ, 1552. Lib. V. Cap. XXVII.

[7] Arnold, Thomas, M.D. A Case of Hydrophobia. 8vo., pp. 245. London, 1793. P. 193.

been cast in the spring, beaten up with a male crab in wine. There is, he says, beneath the tongue of a mad dog a certain slimy spittle, which, taken in drink, is a preventive of hydrophobia; but much the most useful plan is to take the liver of the dog that has inflicted the injury, and eat it raw, if possible, and if not, cooked, and taken with the food, as a remedy for this disease. As to the popular idea of the nature of hydrophobia at that time we may gather something from the statement that "So virulent is the poison of the mad dog, that its very urine even, if trod upon, is injurious, more particularly if the person has any ulcerous sores about him." (Book xxix, chap. 32.)

Scribonius Largus, who flourished at about the same time as Pliny, cites a number of antidotes then in use.†

In the first century of the Christian era flourished also Dioscorides, who treats very fully of the effects of venomous bites and of mad dogs. He recommends for the bites of the latter the methods common to them and the former, and follows these with the administration of the ashes of river-crabs, burnt with a fire made of the twigs of white clematis, together with powdered gentian root. The most effectual remedy, he says, is hellebore; but even this will not avail after the symptoms of hydrophobia are fully developed.[1]

The next writer who attracts the attention of the inquirer is Galen, who lived from 131–200 A. D. His recommendations are scattered through his extensive writings. There is little original in them. He specifies, after the teaching of his preceptor Aeschrion, that the ashes of river-crabs, intended as a preventive of the hydrophobia, should be prepared by burning on a copper plate, in summer, after the rising of the dog-star, when the sun is in Leo.[2] Contrary to what one might suppose from some of the histories of hydrophobia, Galen was sceptical as to the advantage of eating the liver of the mad dog. He says he has seen some who, after doing this, had got well; but, he distinctly states that they had also used other means considered useful in such cases, and that he had also seen others trusting in the liver of the dog alone, who had lost their lives.[3]

In the next century (about 230 A. D.) lived Cælius Aurelianus, who is one of the most interesting characters in the history of hydrophobia. He is the first author, whose works are extant, to give a systematic account of this disorder. But he treats of it so fully that we are able to judge pretty well just what was the general state of information in regard to it up to his time. He discusses the causes, nature, symptoms, simulations, lesions, and treatment of hydrophobia in an orderly and intelligent manner, although he was not free from some of the current errors of his time, and wrote most atrocious Latin. In speaking of treatment, he recommends bleeding, to subdue fever, if any be present, and, if not, to subdue the fear. He advises that when this is done the patient be made to turn away his face, and that the blood be caught in the hand, in order that its flow may not agitate the patient. He condemns in a most intelligent way the follies and superstitions which many of his predecessors had taught.[1]

Aetius, who lived about 543 A. D., advised the administration of oxalis, and speaks of the eating of the liver of the cormorant—the virtue of which, he suggests, may depend upon the fact that patients must go to sea to get it. He also mentions the flesh of the sea-horse, the blood of its young, which creates a great thirst for water, taken internally. He also speaks of the skin of the bear, seal or hyena, applied to the skin as an amulet, and the skin of the hyena reduced to ashes and swallowed.[2]

Paul, of Ægina, who lived either at that time, or in the century following, speaks of the treatment of hydrophobia by the administration of the herb alysson, the liver of the mad-dog, the blood of a partridge, garlic, and onions. He concludes his chapter on this subject with the statement that the most effective treatment is helleborism.[3]

Of Rhazes (860–940 A. D.), Avicenna (980–1036 A. D.), Albertus Magnus (1193–1280 A. D.), Cardan (1501–1576 A. D.), Matthiolus (1501–1577 A. D.), though their names are associated with the history of hydrophobia, there is little worth mentioning when speaking of its treatment.

Ambroise Paré (1509–1590 A. D.), who entertained many of the erroneous notions of his time in regard to the nature and symptoms of hydrophobia, both in dogs and men, advised the use of antimony, with cathartics and sudorifics, good eating, moderate drinking, and the avoidance of sleep. For the treatment of the wound he followed the lead of Aetius in recommending the oxalis to be bruised and applied, and a decoction of it to be taken internally. He also advised the use of mustard dissolved in urine or vinegar, made into a lotion to be rubbed in and laid upon the wound on a double cloth; and finally, he says, all acrid, pungent and strongly drawing substances are useful.[4]

Palmarius (1520–1588 A. D.), published a receipt for a powder, which he said he had received from Sylvanus Count de Pyrou, composed of a number of vegetable substances, and which was in use so late as the middle of this century. (Lipscomb[5] and Bouchardat.[6]) According to Sauvages he first suggested the use of mercurial frictions, in 1578.[7]

†Scribonii Largi de Compositione Medicamentorum Liber. Cap. 45 and 46. (Stephanus: Medicæ Artis Principes.) Folio, 1567.

[1]Dioscorides. Op. cit. P. 59.

[2]Claudii Galeni Opera Omnia. Ed. D. Carolus Gottlob Kühn. 21 vols. 8vo. Lipsiæ, 1821–1830. Vol. XII, Book XI, Chap. XXXIV.

[3]Loc. cit. chap. 10.

[1]Cælii Aureliani de morbis acutis et chronicis libri octo. Amstelædami, 1722. 4to. pp. 32,728. Ed. Jo. Conradus Amman. Cap. xvi. "Quomodo curandi sunt hydrophobi."

[2]Aetii Medici Græci contractæ ex veteribus medicinæ tetrabiblos. Per Janum Conarium Latinè conscripti. Stephanus pub. 1567.

[3]*Παυνου Αιγινητου.* Lib. VII, 4to, 139 leaves. Aldus, 1528. 5th Book, Chap. 3. *Περὶ λυσσωδήκτων καὶ τοῦ ὑδροφοβικοῦ πάθους.*

[4]Ambrosii Parei Opera. Folio. Parisiis, 1572. Lib. xx, De venenis deque rabiosorum canum, venenatorum animantium morsu ac puncturis.

[5]Lipscomb, George, M.D., the History of Canine Madness and Hydrophobia. 8vo. pp. xiii, 211. London: 1809.

[6]Bouchardat, Bul. de l'Ac. de Mèd., 21st Sept., 1852.

[7]Sauvages, Francois Boissier de: Oeuvres diverses, 2 vols. 16mo. Paris: 1771. Tome II, Dissert. sur la rage, p. 112.

Schenckius (1530–1598 A. D.), Platerus (1536–1614 A. D.), Fabricius Hildanus (1560–1614 A. D.), and Zacutus Lusitanus (1575–1642 A. D.), though also identified in other respects with the history of hydrophobia, have not contributed anything of special interest to its therapeutics.

Van Helmont (1577–1644 A. D.), recommended the cold bath, or rather what had come to take the place of this recommendation of Celsus, namely, ducking in the sea. He tells an interesting story of a cure he witnessed. "There is," he says, "a Fortress on the sea-coast, about four leagues from Ghent, called Sluce. There I saw a ship passing by, and in it an old man, naked, bound and weights fastened to his feet. Under his arms they had tied a rope, the other end of which was fixed to the yard-arm of the vessel. I asked the meaning of this spectacle, and was answered by one of the sailors that the old man had got the hydrophobia, having, some time ago, been bit by a mad dog. Why, I asked, is he brought to the sea? whether they meant to drown him? No, no, (said the sailor), he will soon be cured; such is the blessing of God upon the sea that it will instantly cure this kind of madness. At my request they took me on board. We had scarce sailed a mile when the sailors, by pulling out a plug in the bottom of the ship, let in the water till she sunk almost to the edge of the gunwale. This sea-water they collected for the purpose of making salt. The plug being now readapted, two men hauled down the opposite end of the yard, and thus hoisted the old man into the air. They then let him drop into the sea, and he remained under water *ad spatium Miserere*. They repeated this operation twice more, keeping him each time under water *ad spatium salutationis Angelicæ*. They then laid him on his back across a barrel, and covered him with a watch-coat. I concluded he was dead; but the sailors ridiculed my apprehensions. Being now released from his bonds he discharged all the water which he had inspired, and presently revived. He was a cooper from Ghent, and being cured of hydrophobia, continued perfectly well." [1]

In 1625 Aromatarius, a physician of Italy, published a most interesting monograph on hydrophobia, which he held to be a contagious angina. With this in view, he recommended the practice of laryngotomy.[2] The first proposal of this method for the treatment of hydrophobia he attributes to Asclepiades, on the authority of Cælius Aurelianus, who, he says mentions and condemns it. In this, however, Aromatarius was mistaken, for both of these authors spoke of laryngotomy only in connection with indubitable cynanche,[3] and the credit of its suggestion for the treatment of what is taken to be hydrophobia is entirely due to Aromatarius, and not at all to these ancient men.

In 1656 Salius Diversus published a book on pestilential fever, in which he treats of the hydrophobia, in a way that is intelligent to a degree quite remarkable for his times. He had little faith in the modes of treatment proposed, and thought the cases of reported cure must have been of incipient, and not fully developed hydrophobia.[1]

Bœrhaave (1668–1738), though saying that little confidence could be placed in preventive treatment, advised free and deep scarification of the wound made by a mad dog, followed by cupping and the actual cautery. After this the wound was to be kept open and suppurating. After infection of the system he recommended casting in a river or the sea, with great display, so as to make a strong mental impression. At the outbreak of the disorder he advised bleeding "ad deliquum," and to bind the eyes and cast into a cold pond.[2]

Ravelly,[3] in 1696, recommended the use of emetics, diaphoretics, diuretics and purgatives. He says that everyone knows that the best plan is to plunge the patient several times into the sea. He first recommended the use of mercury internally, and praises the virtues of camphor even still more highly. His most remarkable recommendation, I have been surprised not to see in any of the monographs on hydrophobia which I have read. This is the transfusion of the arterial blood of some animal into the veins of the sufferer. For this purpose he says the blood of the he-goat is the best, and explains why.

In 1698 Mr. George Dampier communicated to Dr. (afterwards Sir) Hans Sloane—who then gave it to the public[4]—the composition of a secret remedy, the Lichen cinereus terrestris, or grey ground-wort, which became afterwards a part of the Pulvis antilyssus, long famous and much esteemed in England.

This remedy was subsequently introduced to the general public by Sir Hans Sloane in a brief pamphlet which treats of disorders of the eyes, and to which this is a mere addendum.[5]

This pamphlet was in 1767 translated into French, and its value much enhanced by M. Cantwel.[6]

About this time (1700) Sir Theodore Mayern proposed to the British public the following interesting procedure, which was calculated not only to serve as a test of the state of a dog suspected to be mad, but also as a curative method, in case it was: "Pluck the *Feathers* from the *Breech* of an old *Cock*, and apply it bare to the *Bite*, and do this upon each of the *Wounds*. If the *Dog* were *Mad*, the *Cock* will *Swell* and *Die*, and the Person *Bitten* will do well; but if the *Cock Dies* not, the *Dog* was not *Mad*. If

[1] Berkenhout, John, M D., an Essay on the Bite of a Mad Dog. 8vo. pp. 83. London, 1783. Pp. 58-61.

[2] Aromatarius, Op. cit., p. 85.

[3] Cælius Aurelianus, Op. cit. Lib. iii, cap. iv. P. 195.

[1] Petri Salii Diversi de febre pestilenti tractatus, etc. 16mo., pp. 523. Hardevici, 1656. Lib. de Affectibus part., Cap. xix, De rabie., pp. 341-377.

[2] Bœrhaave, Hermanni, Libellus de materia medica, et remediorum formulis, quæ serviunt aphorismis de cognoscendis et curandis morbis. 16mo., pp. 184, 349, etc. Lugdun. Batavorum, 1727. Aph. 1143-1147.

[3] Ravelly, J. Traité de la maladie de la rage. Small 12mo., pp. 192. Metz, 1696. Pp. 136, 172, 174, 183.

[4] Dampier, Mr. Geo. On the cure of the bitings of mad creatures, with a remark on the same by Hans Sloane, M.D. Philosophical Transactions for 1698, No. 237. Ed. 1809, vol. iv, p. 232.

[5] Sloane, Sir Hans, Bart. An account of a most efficacious medicine for soreness, weakness, and several other distempers of the eyes. Small 8vo., pp. vi, 17. London, 1745.

[6] Histoire d'un remède trés efficace pour la foiblesse et rougeur des yeux et autres maladies du même organe. Avec un remède infallible contre la morsure du chien enragé. Par le Chevalier Hans Sloane, etc. Traduit de l'Anglais et enrichie de notes par M. Cantwel. Small 8vo., pp 27. A Amsterdam et à Leipzik, 1767.

the *Wounds* be very small, it is requisite to open them with a Lancet."[1]

We now come to the time of the great Dr. Mead, (1673–1754 A. D.) who in his various writings, has had a great deal to say about hydrophobia. His notions bear in part the impress of the opinions of his times, and more conspicuously the marks of his own original and fanciful notions in regard to pathology, and the influence of the heavenly bodies on the human frame.[2] In regard to the treatment of hydrophobia, he is most noted for having devised the pulvis antilyssus, which was at first composed of equal parts of the lichen cinereus terrestris and piper niger, but afterwards, as Dr. Mead says, on account of its too great heat in this shape, of only half as much of the pepper. This powder was in 1721 inserted in the London Pharmacopœia, and for many years not only held the confidence of the English medical men, but was also much used in foreign lands. Mead says he had seen the liver of the dog eaten in his time, but without success. In his first medical publication he stated that "The greatest and surest Cure of all, is frequent Submerging or Ducking the Patient in Water."[3] After his composition of the pulvis antilyssus he spoke of this as a "sure cure."[4]

About this time Desault[5] (1732) published his interesting book on the venereal and other diseases, in which he recommends, as a specific, inunctions of an ointment he calls "Neapolitan," composed of equal parts of human fat, hog's lard and mercury. As a concession to the prejudices of his time he permitted also dipping in the sea, the wearing of amulets, religious rites and various diversions. Desault's practice was founded upon the theory that hydrophobia was communicated by the transfer and breeding of certain "insects or little worms," herein being analagous, he said, to the "Venereal Distemper."

In England, Dr. James (1703–1776) next attracts our attention in connection with the treatment of hydrophobia. This is the Dr. James whose fever powder was so long in use all over the world. He is said to have been—and, so far as I can learn, was—the first to suggest in England the use of mercurials for hydrophobia. This suggestion, though it had been made nearly 200 years before by Palmarius, as we have seen, seems to have appeared new to Dr. James, and was the outcome of some investigations in regard to the effect of mercury on dogs, which he reported to the Philosophical Society,[6] in 1735. His suggestion was to give the Turpeth mineral internally and to use inunctions, in the manner which had shortly before been proposed by Desault. He had some faith in the *pulvis antilyssus*, and also in what was known as the Tonquin medicine, a remedy brought from Tonquin by Sir George Cobb, which was composed of musk with native and factitious cinnabar.[1]

About this time also appeared the famous composition of one Hill, an apothecary at Ormskirk, which has since been known as the Ormskirk remedy. This was made of chalk, Armenian bole, alum, elecampane root and oil of anise. This too had a great reputation in its day.

At this time too the use of belladonna was begun in Germany.[2]

As late as 1753, I find that Andree had a case where he found his patient had been made to eat the cooked liver of the dog which had bitten him. Andree himself approved of Desault's method, and used it.[3]

Dr. Robert Whytt (1714–1766 A.D.) recommended the use of opium in large doses, upon the theory that "the hydrophobia is only a violent convulsion of the gullet and stomach, etc., arising from the disagreeable sensation excited by any liquid touching the fauces, or by the effort the patient makes to swallow them."[4]

This recommendation of Whytt has found its most heroic following in the practice of Babington, who gave a patient within twelve hours 180 grains of opium, besides giving him a hot bath, blistering and bleeding him, and using an inunction of strong mercurial ointment, The patient—which is hardly remarkable—died in 15 hours.[5]

In 1784, one of the most astonishing suggestions in regard to the treatment of hydrophobia was made by M. de Mattheis, Surgeon in the army of the King of Naples. Seeing one day a dog supposed to be mad, and which had a convulsion when water was offered to it, he applied to its throat a viper, and excited the latter to bite. At once, he says, the dog's head swelled up, the hydrophobia ceased, and the animal recovered.[6] Soon after, in 1788, Fabbroni reported a case[7] where the same treatment, with the modification that there were two vipers employed, which were applied one to each leg, was used upon a man. The patient seemed to be relieved for a moment, but he died in half an hour.

In 1789, Dr. Percival suggested the application of fresh gastric juice, or the saliva of a healthy young person, obtained by chewing rennet, to the bite of a mad dog, after the wound had been thoroughly washed in the manner recommended by Dr. Haygarth. He also gave an interesting account taken

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[1] Mayern, Sir Theodore. Several Receipts for the Bite of a Mad Dog. Philos. Trans. 2d ed., by Lowthorp, 4to, London, 1716, vol. iii, pp. 283–284.

[2] Mead, Richard. De imperio Solis ac Lunæ. 8vo, pp. xvi, 123, Londini, 1746.

[3] The Same. A mechanical account of poisons. 8vo., pp. 184. London, 1702.

[4] The Same The medical works of. A new edition. 8vo, pp. 511, Edinburgh, 1775. Art. "Of the mad dog." Pp. 56–72.

[5] Desault, Pierre, M.D. A Treatise on the Venereal Distemper, etc., with Two Dissertations; the first on Madness from the Bite of Mad Creatures; the second on Consumptions. Translated from the French by John Andree, M.D. 8vo, pp. 16, 332. London, 1738. Pp. 195–271.

[6] James, Dr. Robert, Some experiments made on mad dogs with mercury. Dated Litchfield, June 3, 1735. Philos. Trans. for 1736, No. 441, London, 1809, vol. vii. pp. 69–73.

[1] James, R., M.D., a new method of preventing and curing the madness caused by the bite of a mad dog. 8vo, p. 40, London, 1743.

Ibid. A treatise on canine madness. 8vo. vols. vi. pp. 264, London, 1760.

[2] Lettsom, J. C., Appendix to Mease: "An essay on the disease produced by the bite of a mad dog. 8vo. pp. xvi., 179, Philadelphia and London, 1793.

[3] Andree, John, M.D., Cases of epilepsy, hysteria, fits, etc...To which are added cases of the bite of a mad dog. 2nd ed. 8vo., pp. 298, London, 1753.

[4] Whytt, Robert. The works of, published by his son. 4to, Edinburgh, 1768. On the nature, cause and cure of nervous diseases. Pp. 679–680.

[5] Babington, Dr., Two cases of rabies canina, etc. Medical Records and Researches. London, 1798. Pp. 117–154.

[6] Mattheis, M. de, Apergu sur les moyens de guérir l'hydrophobie. 8vo, Paris, 1784. Reviewed in *London Med. Jour.* vol. v., 1785, p. 220.

[7] Fabbroni, J., report of a case where vipers were applied for a hydrophobia. *London Med. Jour.*, vol. ix., 1788, p. 69.

Percival Thomas. Essays. 4th ed., 2 vols., 8vo. Warrington, 1789. Vol. ii. Essay X., p. 363–384.

from Abbé Grosier's "Description of the Chinese," of a species of porous stone, used in "Tang-King," and called a "Serpent-stone," This stone was applied to the wounds of serpents and mad dogs, whereupon it adhered, drew to itself the virus, dropped off, and the patient was saved. This stone, after washing in lime water and drying, could be used over and over again. This is the earliest allusion to the so-called "mad-stone," which I have found.

The next reference to the "mad-stone" which I have found is contained in an unpublished letter to Dr. Rush from a Mr. Samuel Davis of Petersburg, Virginia, dated Oct. 2, 1801. In this the writer tells of his endeavors to avert the hydrophobia from a son who had been bitten by a suspected dog. The boy, after some domestic applications, was, by the advice of a physician, cauterized and blistered almost down to the bone of his arm. He was then almost wild, and was taken to a person reputed to have a "mad-stone." With the performance of this stone the father was not satisfied, because, contrary to his expectation, and the popular belief about such stones, he could see no evidence of the poison boiling out of it after its removal. He therefore took his son to a second person owning a "mad-stone." The application of this he graphically describes, and his seeing, after it had remained on for periods of twelve hours and was taken off and put into water, some bubbles arise from one corner of it, which the owner of the stone told him was the poison coming out. An investigation of the history of this stone—for which the owner said he had refused an offer of 300 guineas—revealed the fact that it had been given by a stranger who had been hospitably cared for when sick. It was wrapped in a piece of paper dated Charleston, South Carolina, 1740, and having printed on it the following: "Francis Torres a native of France is in possession of a chymical preparation, called a Chinese snake stone, which will extract the poison of the bite of snakes, spiders, and of a mad dog, and will cure cancers, which are sold at half a guinea for the small and a guinea for the large ones."*

We have now come to the beginning of the present century, a time when the prevailing method of treating hydrophobia was with bleeding and mercury. The most instructive writer on the subject of hydrophobia about this time was Mease, who, in 1792, published an inaugural dissertation, on taking the degree of Doctor of Medicine in the University of Pennsylvania, which is one of the most valuable publications on the subject which have appeared in any time. His studies, then[1] and afterward,[2] led him to dissent from the view of Dr. Rush that hydrophobia was a malignant fever, and to oppose blood-letting; while he thought as well of mercurials as of anything.

Dr. Rush, on the other hand, at first believed that hydrophobia was a malignant fever—an opinion which, though incorrect, was not novel, for, long before, Eustachius Rudius had called it "*a putrida maligna humiditate caput petente morbum.*"[1] Dr. Rush, thinking as he did of the nature of the disorder recommended free blood-letting, saying: "The loss of 100-200 ounces of blood will probably be necessary in most cases to effect a cure."[2] In 1811 I find he made the following endorsement on the back of a letter from Dr. A. C. Peyton, of Virginia[3] (who wrote in great anxiety because he had had his hand scratched by the teeth of a mad steer, to which he was administering medicine):

"May 31, answered his questions—

"1. No animals communicate the hydrophobia but dogs, cats and foxes.

"2. Cutting out the wounded part at any time before the disease comes on, prevents it.

"3. The wound should be kept open 4 or 6 weeks.

"4. There is no medicine taken internally that prevents the disease."

Later still he came to the opinion that hydrophobia was essentially a spasmodic disorder of the larynx, and recommended laryngotomy.[4]

This last proposal of Dr. Rush was a modification of that made by his friend Dr. Physick, who, after observing a single case, concluded that the trouble was due to a spasm of the glottis, and, in 1802, advocated the performance of tracheotomy.[5] We have here another interesting illustration of how history is unwittingly repeated; for, as we have seen, this operation had been recommended for employment in hydrophobia by Aromatarius, about two hundred years before, while—though in this he was mistaken—he had attributed the first suggestion of it to Asclepiades, before the Christian era.

About the beginning of this century galvanism, which had nearly 40 years before been used in the treatment of tetanus,[6] was used by Rossi with entire success in a case he considered to be one of hydrophobia. In the very dramatic report of a case which was given by Vassali-Eandi to the Academy of Sciences of Turin, it is stated that Rossi, having extemporized a galvanic battery, made his patient stand barefooted on sheets of coarse, wet paper connected with one pole, and thrust a conductor, connected with the other, into his mouth *whenever he opened it to bite!* In this manner shocks were repeated until the patient was unable to stand, and was covered with beads of sweat. The next day he came back and reported himself cured, and, notwithstanding the solicitations of the

* For this interesting story I am indebted to the kindly interest of Dr. Samuel Lewis, President of the College of Physicians of Philadelphia, who secured for me access to the rich collection of unpublished correspondence of Dr. Rush, which is preserved in the Ridgway Branch of the Philadelphia Library.

[1] Mease, James, On the disease produced by the bite of a mad dog or other rabid animal. 8vo, pp. v, 131, Philadelphia, 1792.

[2] The same. Observations on the arguments of Professor Rush in favor of the inflammatory nature of the disease produced by the bite of a mad dog. 8vo., pp. 62, Philadelphia, 1801.

[1] Aromatarius. Op. cit., p. 27.

[2] Rush, Benjamin. Medical Inquiries and Observations. 2d ed. Philadelphia, 1805, vol. ii, p. 317.

[3] Unpublished correspondence of Dr. Rush, before referred to.

[4] Rush, op cit., 5th ed. Philadelphia, 1818. Vol. ii., pp. 193–211.

[5] Physick, Philip Syng; A case of hydrophobia. *Medical Repository*, vol. v., 1802, P. 1–5.

[6] Watson, Wm, M.D., Effects of Electricity Applied to a Tetanus. Philos. Trans. for 1763. 4to, London, 1764, pp. 10–26. Also, Spry, Dr. Edward. Account of a Locked Jaw and Paralysis Cured by Electricity. Philos. Trans. for 1767, 4to, London, 1768, pp. 88–91.

enthusiastic operator, declined to undergo a repetition of the treatment.[1]

Delabere Blaine, who is regarded as the pioneer of intelligent veterinary medicine in England, and who corrected a number of popular errors about rabies in dogs which had prevailed up to this time, believed he had been saved from hydrophobia by a nostrum, and declared that excision was as effectual at the end of the first, second or third week as at the first.[2]

Youatt, the veterinarian, who built his ideas, to a considerable extent, on those of Blaine, had a most extravagant faith in the cauterization of the bites of mad dogs with the nitrate of silver, and advised its use even after the constitution has been affected.[3]

Dr. Parry, who was one of the most intelligent writers on the subject of hydrophobia, and whose interest in the subject extended over a period of nearly 40 years, despaired of curing the disorder when once it was fairly developed, but advised even late excision of the cicatrix and its immediate surrounding tissue as a preventive measure.[4]

In 1820, Marochetti, an Italian surgeon, announced that he had learned, in 1813, from a Cossack peasant in the Ukraine, that there were, in cases of impending hydrophobia, certain vesicles beneath the tongue, (which are known in history as "lyssi") the excision of which would prevent the outbreak of the disorder.[5]

This so-called discovery has been robbed of its novelty by an excellent report of Auzias–Turenne to the French Academie de Médecine,[6] in which it is shown that the lyssi were explicitly indicated by Pliny, Demetrius, Pepagomenus and Fracastor; that they were known by tradition in Greece, Turkey, Spain, and Galicia.

The practical value of the theory of the lyssi has long been known to be *nil*, although even such recent writers as Trousseau[7] and Doléris[8] have given them credit, and the latter has accepted a story of the inoculation of the contents of them, so as to produce an artificial rabies in horses.

About this time Urban propounded the theory that the virus of hydrophobia is at first deposited in the immediate neighborhood of the wound, and it is followed by the development of certain vesicles which contain the virus and have inoculable contents, like the "lyssi." He recommended bathing the wound with acidulated, warm milk, applying cups, and then salt solutions. The vesicles were to be carefully looked for, and, if they appeared, they were to be opened and treated like the original wound.[9] He enforced these recommendations by citing a number of cases where he had, according to his own statement, saved his patients' lives in this way.

In 1821, Magendie proposed and experimented on a dog with intravenous injections of warm water. Afterward he treated a man who had symptoms like those of hydrophobia after strong emotional excitement, with an intravenous injection of two pounds of warm water, he having been well bled several times before. The result was a temporary calm, followed in two days by hæmorrhage from the bowel, then by abscess of the leg, and death on the ninth day. Magendie's theory was to produce an artificial aqueous plethora, to enfeeble the functions, and especially the nervous system. The dog he experimented on died as well as the man.[1]

This method was also tried successfully by Gaspard, in 1824.[2]

In 1831 Trousseau, at the recommendation of Magendie, gave to a patient of Recamier's, whose *interne* he was at the hospital at that time, what was supposed to be 36 drops of officinal hydrocyanic acid. The patient, a young man, fell at once, as if dead. It was then learned that the drug clerk had made a mistake, and sent Prussic acid instead of what was ordered. Trousseau thought, of course, that the patient was killed; but, strange to say, his symptoms were somewhat relieved, and he was given several smaller doses afterward. He died, however, within twenty-four hours.[3]

Let us now advance our review of former methods of treatment of hydrophobia, at the cost of omitting some that are curious, but none that have proved efficient, to the year 1852, when Bouchardat[4] made a report to the French Academy of Medicine, at the request of the government, upon a large number of proposals sent in just before that time for the cure of hydrophobia. This report contains, among other curiosities, the composition of a famous cabalistic omelette, made up of the lower shells of male oysters, powdered, with eggs and oil. One of the proposals—which came from a "Chocolatier" of Thernes—was to inoculate the patient with the virus of small-pox. The proposer claimed that he had treated and cured more than twenty persons in this way. A certain M. Vau proposed that the patient should be choked and thrown on a very hot brazier, so as to be well burned. After this he was to be cast into the water, "to extinguish him, and to counterbalance the two electro-magnetic currents." The "Countess of Saparta" wrote that she had observed that when she squeezed the anus of her dogs between her thumb and finger, she pressed out a yellowish fluid. This she did every fifteen days, and her dogs had not gone mad. She asked, therefore, if the virus

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[1]The *Medical and Chirurgical Review*, vol. x, London, January, 1804, pp. lxxxix-xci. Also, Thacher, James, M.D. Observations on Hydrophobia. 8vo., pp. 302, Plymouth, Mass., 1812. P. 174.

[2]Delabere Blaine. An Essay on Hydrophobia. Corrected and revised by Dr. James Carver. 8vo., pp. xii, 94. Philadelphia, 1818.

[3]Youatt, William. The Dog, edited by E. J. Lewis, M.D., 8vo., Philadelphia, 1853.

[4]Parry, Calebus Hillier, Tentamen medicum inaugurale de Rabie Contagiosa. 8vo., pp. 102. Edinburgi, 1778.
Ibid. Cases of Tetanus and Rabies Contagiosa. 8vo., London, 1814.

[5]*Journal de Physiologie*, T. v, 1825, pp. 275–318, and *Arch. gên. de Mèdicine*, T. IX, 1825, pp. 80–99 and 247–257.

[6]Auzias-Turenne, Apercu historique et philosophique sur les lysses ou vesicules de la rage. Bul. de l'Ac. de Méd. T. XXXIV, 1869. Pp. 8–23.

[7]Trousseau. *Clinique Médicale*. Paris, 1865. Tome II., p. 361.

[8]Nouveau Dictionnaire de Méd. et de Chir. Tome XXX, 1881, Art. "*Rage humaine*."

[9]Urban. Review by Sulzer, in *Journal des Progrès*, Paris and Strasbourg, 1827, T. II., pp. 43–54.

[1]Magendie. "Expériences sur la rage." *Journal de Physiologie*, vol. I. Paris, 1821. *Ibid.* "Histoire d'un Hydrophobe, trait à l'Hotel-Dieu de Paris au moyen de l'injection de l'eau dans les veines. *Journ. de Phys.* Tome III, Paris, 1823.

[2]"Expérience sur un homme hydrophobe." *Journal de Physiologie*. Tome IV. Paris, 1824.

[3]Trousseau, A. Clinique Médicale, 2 vols., 8vo. Paris, 1865. Vol. ii, pp. 349, 350.

[4]Bouchardat. "Rapport géneral sur divers remèdes proposés pour prévenir ou pour combattre la rage." *Bul. de l'Acad. de Mèd.* Tome XVIII, 1852, pp. 6-30.

of rabies were not in this, and suggested inoculations with it as a preventive.

Bergeron, so recently as 1862, reported a case of a child, 12½ years old, to whom he gave hypodermic doses of $^1/_{10}$ grain of atropia.[1]

In 1863 M. de Moerenhaut, formerly Consul at Los Angeles, claimed that hydrophobia originates in pole-cats, and does not exist where these are not found. From the same source where he gathered this information he learned that the application to the wound of chewed confitura leaves, and swallowing the expressed juice, was a preventive of hydrophobia.[2]

To conclude this purely historical part of our study, I will merely mention the use of the Xanthium spinosum, which was proposed as a remedy by G. R. Zymala,[3] or Grzymala,[4] in Russia, about 1866. It was tried experimentally at Alfort, and found unreliable, notwithstanding the extravagant claims of its proposer. Doléris says that this drug was said to have cured 100 cases in Podalie and the south of France in 1876—a statement which he utterly rejects.

That this sketch of the remedies which have been in use in the past is but a sketch, will be appreciated by any one who looks over the list of remedies given by a single author, Saint-Martin,[5] which includes 39 from the mineral kingdom, 213 from the vegetable, 86 from the animal, and 9 compound nostrums. I have not mentioned a large number of charms, rites, and mummeries; to make a complete list of them would make up a volume and waste a life-time. But enough has been exhibited to show how vainly the previous generations have struggled with the strange problem presented by the current theories as to the nature of hydrophobia.

We may now turn to a consideration of the methods of treating hydrophobia which have been recommended in such recent times as to constitute practically the methods of our own day. The most important of these consist in the administration of morphia, chloral, curare, cannabis indica, hoang-nan or pilocarpine, by the mouth or rectum, or hypodermically, inhalations of chloroform, nitrite of amyl or oxygen, and the application of electricity. In discussing these, we must exchange the historical for the critical attitude, and endeavor to determine, as we go along, what claim each method has on the confidence of the world.

Morphia is the natural successor of opium, which, as we have seen, has been long in use. It is easy to understand how it might have been assumed *a priori* that opium, or its active principle, would be useful in the treatment of hydrophobia; but it is hard to understand why its invariable failure to save life should not long ago have led to its being discarded. And here we come upon one of the many paradoxes with which the history of this disorder is full, namely, that the remedies which have been most steadfastly praised and commended, which have held their ground the longest, are the very ones which have oftenest failed. Opium is one of these deceivers. Bleeding was another. We have seen that Dr. Rush advised bleeding to the extent of from 100 to 200 ounces, and no one can claim that the method did not get a fair trial, for its advocates bled often enough and freely enough to satisfy the most exacting. As Dr. Pearson remarked in 1802: "In some of the unsuccessful cases, the quantity of blood drawn was astonishingly great."[1] And Desault cites a case from Clement where twenty pounds of blood were taken from a patient.[2] Yet, in the face of this, the advocates of bleeding urged it again and again, and charged its failure upon the timidity of those who employed it.

The same may be said of the use of mercury. Notwithstanding the fact that for two hundred years it has been tested and found wanting, it has been recommended from writer to writer until even so recent an author as Doléris, in 1881, gives it a sort of side glance of approval. And this is a remedy the use of which was founded upon an assumed similarity between the poison of syphilis and that of hydrophobia, and the belief, as John Douglas bluntly put it, that "that antidote, which most effectually expels the malignant and deadly poison conveyed by the sting in a harlot's tail, must also be the best antidote against the sting of the scorpion, the bite of the viper, rattle-snake, and all the serpents in the East or West Indies."*

I think that of morphia even a more severe condemnation may be formulated. I have studied the details of many cases where it was used, and I cannot recall a single one where it has seemed to have done any real good. But I can recall, from my reading and experience, many cases where I feel sure it has done a great deal of harm, where the opium or morphia has, in my judgment, been largely responsible for the delirious excitement, which has been kept in a flame of fury by the physical surroundings and management of the patient, until it and they have succeeded in parting the soul and body of the poor sufferer they were intended to relieve.

Chloral, I think, is open to the same objections as morphia, although I do not believe it as absolutely pernicious. I have failed to discover any evidence that it is of real value, and I think it is absolutely dangerous in the large doses often recommended. Some of the cases I have studied have left on my mind the impression of an accumulation of the doses given, followed by their absorption all at once, with the effect of sudden heart-failure and collapse.

The use of curare in the treatment of hydrophobia is said by Dolan[3] to have been proposed first by Prof. Sewell early in this century. It was first used in 1861, at Milan, but was not successful. In the next year, I find Bergeron[4] regretting that its scarcity may

[1] Bergeron, Jules. "De la rage." *Arch. gén. de Méd.* 5 sér. T. xix, 1862, pp. 137, 307, 550, et seq.

[2] *Bul. de l'Acad. de Méd.* T. xviii, 1863, pp. 914-919.

[3] Bonjean, Jh. Monographie de la rage. 8vo., pp. 238 Chambéry, 1878. P. 134.

[4] Doléris, op. cit.

[5] Saint-Martin, A. F. C. Monographie sur la rage. 8vo., pp. xxii, 394. Paris, 1826. Pp. 305-318.

[1] Pearson, Richard, M.D., of London. Letter in the *Med. Repository*, vol. v, New York, 1802, pp. 78, 79.

[2] Desault. Op. cit. P. 268.

*James, R. A Treatise on Canine Madness. 8vo, pp. vi, 264. London, 1760. P. 133.

[3] Dolan, Thomas M. Rabies or Hydrophobia. 8vo., pp. viii, 287. London, 1879. P. 167.

[4] Bergeron. De la rage. *Arch. gén. de Méd.*, T. xix, 1862.

prevent its general use as a remedy. Yet it is often thought that it was first used by Offenberg, who, in 1875, published an inaugural dissertation containing an account of a case of supposed cure by its means.[1] In the next year Dr. B. A. Watson, of Jersey City, had a case which, though it lacked the symptoms of spasm of deglutition and inability to drink, he and Prof. Austin Flint concluded—the latter rather hesitatingly, indeed—to be a case of hydrophobia, or rabies canina. Apparently without being aware that curare had ever been used in this disorder, Dr. Watson proposed it, and with Dr. Flint's concurrence, administered it hypodermically, and the patient got well. This has been cited as a case of cure by curare, but this cannot be done unqualifiedly when it is borne in mind that the patient was treated for awhile with strychnia, and for the three most important days of his illness he received large quantities of brandy.[2]

A few other cases of supposed recovery after the use of curare have been reported; but I think they are not to be relied on as indicating that this drug has any curative action in hydrophobia. And there are many objections to curare. The drug is a compound of uncertain composition and unequal strength, and it is often impossible to obtain. In addition to this its effects are calculated to mask, but not to benefit the morbid state which constitutes the hydrophobic condition. Waterton hoped that it might at least produce a calm death; others have, I think, found that this is what it can do at most. Thus, in a case reported in the *Lancet*, Oct. 15, 1881, we find that, after an attempt to chloroform the patient, which had to be discontinued—to quote the exact words of the report:—"One-tenth of a grain of curare (Savory and Moore's gelatine disc) was administered hypodermically at 4:20 P. M. Patient died quietly at 4:30 P. M., asphyxiated."

Cases similar to this, though less striking and conclusive can be found scattered through the medical journals of the past ten or fifteen years, and they have led most students of the therapeutics of hydrophobia to the conclusion that curare is as worthless as any other of the many remedies which have from time to time attracted the attention and deceived the hopes of mankind.

The use of cannabis Indica was, so far as I know, first suggested by Mr. Cæsar Hawkins, in his "Contributions of Pathology and Surgery," vol. i, p. 74.[3] In 1881 Mr. Ruxton, an India surgeon, reported[4] a case of a boy, 5 or 6 years old, whom he supposed he had cured of hydrophobia by five minim doses of the tincture of this drug.

This remedy has one thing in its favor, and that is no small matter, namely, its mildness. The evidence is not sufficient to warrant any strong expression as to its value, but its usefulness in simple mania would seem to indicate that, if not used in toxic doses, it might prove serviceable in hydrophobia also.

The next remedy to which I call your attention is also from the far East. This is the "Hoang-nan." Hoang-nan is a vegetable substance obtained from the strychnos gaultheriana, which was introduced to the French from Tonquin, about five years ago, by a M. E. C. Lesserteur,[1] who claimed, as is not uncommon with those who propose remedies for hydrophobia, that he had used it successfully in a large number of cases. He stated that he had given it in more than 100 cases bitten by rabid dogs, and in none has he known of the appearance of hydrophobia. This remedy has attracted but little attention, although it has been pretty well discussed in France and its effects in the hands of others has not been calculated to justify the hopes of its proposer. The virtue of the remedy—if it can be supposed to have any—depends upon the fact that the hoang-nan contains strychnine and brucine. A case which ended in recovery was reported by M. Barthélemy last year.[2]

But this remedy has entirely failed to gain a foothold even in France, where, as has been said, it was pretty well discussed about two years ago, and has been hardly noticed, and, I think, never used anywhere else, unless we believe the stories of its extensive employment in the East, of which I have seen no trustworthy evidence.

Within the last few years jaborandi, or its active principle, pilocarpine, has been highly vaunted for the treatment of hydrophobia, and a certain number of cases of supposed cure by its use have been reported. But they will not bear sifting. One of the most notorious of these was reported to the French Academy of Medicine, by M. Denis-Dumont, in 1882.[3] This case was so circumstantially narrated, and seemed so conclusive, that it was cited by a large number of foreign journals as an actual cure of hydrophobia by the treatment employed. But unfortunately for the credit of the remedy, the case was referred by the Academy to a commission, consisting of Mm. Bouley, Bergéron and Leon LeFort. This commission, in an elaborate report, presented by M. Bouley, declared that it was not a case of hydrophobia at all.[4] In addition to this negative opinion, there is, in the same volume, where the case is reported, a letter from a M. Victor Chatel,[5] who was familiar with the history of the case, and there can be no doubt from what he says that the patient, being a hard drinker, was suffering only from the effects of alcohol and the rough handling of the people who first had charge of him, one of the proceedings of whom was to tie the man to a tree.

The conclusion which Germain-See[6] and Dujardin-Beaumetz,[7] came to, and which M. Barthelémy has stated in his paper on Hoang-nan,[8] in regard to jaborandi and pilocarpine, is, I believe, the correct one,

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[1] *New York Medical Record*, March 18, 1876, P. 188.

[2] Watson, B. A., M.D. A supposed case of rabies canina. *Amer. Journal of the Med Sciences*, July, 1876. Pp. 80–91.

[3] Nourse Mr. Letters in the *British Medical Journal*, Dec 3 and 31, 1881. Pp. 923, 1076.

[4] *British Medical Journal*, Nov. 19, 1881.

[1] Lesserteur. Le Hoang-nan, Paris, 1879. This book, mentioned by Barthélemy, I have not seen.
Dujardin-Beaumetz, M. Bul. de l'Acad. de. med. 1882. P. 103, 743–748.

[2] Barthélemy. Le Hoang-nan et la rage. Bul. gén. de Thérapeutique, 1883, T. cv, pp. 147–160.

[3] Bul. de l'Acad., 13 Juin, 1882. P. 696.

[4] Bul. de l'Ac. de Méd., 27 Juin, 1882.

[5] Bul. de l'Ac. de Med., p. 760. 1882.

[6] Bul. de l'Ac. de Med., 1882, p. 713.

[7] Bul. de l'Ac. de Med., 1882, p. 718,

[8] Bul. gen. de thérap., 1883, T. cv, pp. 147-160.

namely, that they rather aggravate than ameliorate the disorder.

It is not worth while to more than refer to certain other remedies which have been used of late, but which have no claim upon the serious attention of the present day. Among these are valdivine, (the active principle of the Picrolemma valdivia), hyoscyamine, codeia, false angustura, pelletiérine, arsenic, arsenite of strychnia, the bromide of camphor, ammonium, calabar bean.

The remedies administered by inhalation are chloroform, nitrite of amyl and oxygen. Nitrous oxide gas has also been used.

The inhalation of chloroform was first proposed and used by Dr. Henry Hartshorne, of Philadelphia, in 1848. But it has not been found of any real merit. Doléris thinks it is absolutely injurious. It has seemed to me that its use, in conjunction with a hypodermic injection of morphia, in the manner known as a mixed narcosis, as proposed in 1877, by Nussbaum, might prove useful, even though neither of these remedies ought to be used alone.

The use of nitrite of amyl was first suggested by Dr. W. S. Forbes in a paper read before the College of Physicians of Philadelphia, April 7, 1875,[1] and was first employed by him in 1877.[2]

This method has been imitated in a few cases, but it has thus far shown no curative value whatever, and has not received the indorsement of any well-known writer on hydrophobia.

The inhalation of oxygen for the treatment of hydrophobia was first practiced by Drs. Schmidt and Zebeden, in Russia, in, or about, 1879. The patient was made to inhale three cubic feet of the gas, whereupon the paroxysms came to an end. The next day they recurred, and the inhalation was repeated, and continued for forty-five minutes. After this the patient recovered. The reference[3] which I have in regard to this case leaves much to be desired on the score of completeness. But the hope that inhalation of oxygen might quiet the paroxysms of hydrophobia seems to get some support from the assertion of Dr. B. W. Richardson that oxygen has a distinct antispasmodic influence, though his inference, after seeing a case of tetanus treated in this way by Sir James Paget, that the profuse sweat in which the patient was bathed, indicated a special eliminative action upon the materies morbi,[4] must be regarded as rather fanciful. As long ago as the year 1830, however, this matter of the possible utility of the inhalation of oxygen for the treatment of hydrophobia, was carefully considered by Dr. Murray, who came to the conclusion that no help was to be expected from it.[5]

Nor is the use of electricity, which has been recently reintroduced to the notice of the profession, so novel a thing as we might suppose. As we have elsewhere seen, this was first used near the beginning of the century. But it has been resorted to again quite of late in France, and Doléris, writing in 1881, says it has been reported to have effected cures in five or six cases in Italy, and, while he admits that on more extended trial it has failed, yet he claims that recently reported cases indicate that it effects in a rapid and durable manner the diminution, if not the entire disappearance, of the paroxysms. Unfortunately, I can not find any confirmation of this hopeful statement. The last case I am aware of, which was treated in this way, was a patient of M. Germain Sée, who died, in spite of the use of pilocarpine, hoang-nan, and electricity to the region of the medulla oblongata.[1]

We now come to the question, what is the method of treatment of hydrophobia which a careful study of the experience of the past, and a just appreciation of the disorder we are considering, indicate as most likely to be of benefit? To answer this question I will suppose one has been called to a case which is suspected to be one of hydrophobia, and describe the measures I think should be adopted under such circumstances. The first thing to be done is to bring some sort of order out of the confusion which is apt to reign before the doctor arrives. Well meaning, but hurtful, gaolers must be called off from the patient, the horrified and horrifying spectators must be dispersed, the patient must be placed in as quiet surroundings as possible, while the doctor strengthens those about by himself setting an example of steady composure. A tolerable degree of quiet having been secured, the next step must be to ascertain what is the real nature of the disorder with which the patient is afflicted. I have elsewhere shown* that there is a large variety of organic and functional diseases having no connection with the bite of a rabid animal, in which the symptoms of hydrophobia are presented. The physician should be familiar with all these and search for their presence with a most rigid examination; and only when all possibility of their presence has been excluded should the diagnosis be concluded upon as one of hydrophobia. If any one of these simulating disorders be found to be the cause of the symptoms, of course the treatment should be that which is proper to that particular disorder. Into the details of this we may not now go. One paper would not suffice to describe the treatment of so many diseases.

But, if the most painstaking and intelligent investigation leaves no alternative but to conclude that the disorder is indeed what is generally understood

[1] Trans. College of Physicians of Phil., 3 ser., vol. I, p. 138.

[2] *Am. Journal of Med. Sciences*, April, 1878, pp. 402–404.

[3] *St. Louis Med. and Surg. Journal*, April, 1879, p. 331. (From *Lyon Médicale.*)

[4] Richardson, B. W., On the Positive in the Remedial Art. *Lancet*, 1878, p. 750.

[5] Murray. Remarks on the Disease called Hydrophobia, small 8vo, pp. ix, 86. London, 1830. P. 82.

[1] Bul. de l'Ac. de Méd., 1882, p. 713.

Since this paper was prepared M. Pasteur has announced that he has devised and practiced a method of preventive inoculations with an attenuated virus of rabies, so that he has thereby rendered certain dogs absolutely incapable of contracting the disease As he has not tried his method on human beings, and does not dare to suggest that it shall be so tried, it might be thought that it does not concern us at present. But in view of the fact that this announcement was given in a sensational shape to the newspapers, and that it was accepted by many medical men, as well as the laity, as furnishing a reliable means of protection against death from hydrophobia, it may be worth while to put those who are not familiar with M. Pasteur's methods in general, and what he has and has not done in regard to the subject of hydrophobia in particular, on their guard against too hasty an acceptance of this announcement, and to protest against it, as founded upon false premises, arrived at by false reasoning and being a false conclusion.

*See a paper read before the State Medical Society of Pennsylvania, May 15, 1884, "Disorders mistaken for Hydrophobia."

by the term hydrophobia, then a plan of treatment must be adopted which corresponds with what is known in regard to the nature of this disorder. Such a plan includes certain general—we may say, moral—principles as well as a *modus medendi.* Indeed, I believe the former are of a greater importance in our present state of knowledge, than the latter. The first general principle to be observed in the management of a case of supposed hydrophobia is not to be misled by the real or apparent inability of the patient to drink; and joined with this should be an attempt to prevent the patient from being misled by it. The doctor should know that this symptom, in the very manner and form supposed to be peculiar to hydrophobia, may be absent in this and present in a number of other disorders. The patient should be also informed of this fact in every case. Further, both doctor and patient should get rid of the time-honored but utterly erroneous notion that the patient's life is endangered by this inability. And, since this is so, all attempts to induce a patient to drink are useless at the best and pernicious at the worst. As a means of aiding the diagnosis they are of no use to the physician, and they always do harm to the sufferer. If this sufferer be a little child, and force be used, as it too often has been, to compel the patient to drink, then the perniciousness of the practice rises to the point of absolute cruelty, and marks at once the ignorance and the hardness of the doctor.

Only less reprehensible than this are such tests as presenting a looking-glass to the patient, or blowing or sprinkling water on him, which ought to be forever banished from an enlightened medical practice.

Almost every writer on the subject of hydrophobia warns against the danger of making inquiry in the hearing of a patient, after a suspected bite. I think that one might even go farther than this, and say that inquiry after a bite of a mad creature may well be postponed altogether until after the death or recovery of the patient. The knowledge of such a bite is never necessary to the diagnosis, and the determination that no such a bite has occurred does not overthrow it. Such inquiries always do harm to the patient or his friends, and they never do any good to the doctor, at that time. He may therefore well exercise his patience, and restrain his curiosity until his patient is recovered or dead, when an exhaustive detectiving of all the elements of the case may contribute to the advance of science without prejudice to the subject of the investigation.

But, while observing the precautions just mentioned, I think one may err in preserving too scrupulous a silence or insincerely repudiating the idea of hydrophobia. If this idea really has not entered the head of the patient, then it ought by no means to be suggested. But if it be already there, the subject must not be so studiously avoided—much less made the occasion of lying—as to betray to the patient the despair with which it fills the doctor. The latter need never deceive himself with the notion that he can thus hide the dreadful conviction which has taken possession of him. When matters have come to this pass, frankness and as much fearlessness as can be summoned are best calculated to win the confidence of the sufferer.

On the other hand, while the doctor is avoiding the useless attempt to deceive his patient, by a too significant silence, as to the apparent character of the disorder, he should not be misled by a corresponding attempt on the part of the patient. It is far from uncommon for the latter, by persistent silence or even by stout, and seemingly sincere denials, to strive to convince himself as well as his physician that he cannot have hydrophobia. For such is the strangeness of this disorder that, as the old Spartan youth denied all knowledge of the stolen fox which he had hid under his cloak and which was at that moment tearing at his vitals, so in cases of supposed hydrophobia will both patient and doctor try to deceive each other as to what is going on in their minds, the one to save his life, the other to redeem it, until each sees that the other has recognized the poor attempt, and both give it up before the horror which will no longer be held down.

Again, the sufferer with hydrophobia should never be treated with violence. If the disorder be an acute mania, or the fury of a convulsive or febrile delirium, forcible restraint may be required. But it is not needed in hydrophobia. It is true that patients sometimes call for it and doctors often prescribe it. But in both instances this shows the possession of popular, as opposed to scientific, ideas in regard to the subject. Forcible restraint is not demanded for the safety of the bystanders, and it is injurious to the patient. Indeed, there can be no doubt that the greatest struggles of patients who have been subjected to force has been provoked by that very force. The fear of ordinary acts of violence on the part of one supposed to have hydrophobia, is usually supplemented by the fear that a like disorder may be contracted from his bite or the absorption in any way of his saliva. This fear is utterly groundless. There is not one respectable assertion in all the literature of the subject in support of it. I have myself had occasion to put this confidence to the proof, and I have no uncertainty in regard to it. I recommend the attainment of a like confidence to others. For they must be without fear themselves if they would encourage others. And if they have no fear, then they can be of great service at a time when fearlessness seems to be about all that is left to those who would be helpful if they could.

Thus every effort of the doctor must be used to obtain and preserve as great a degree of calm as possible. Then the patient must be disturbed as little as possible. No offer of food or drink should be made. For if a man can live forty days without eating, one may well take the responsibility of yielding to the determination of a patient who not only fears and hates the thought of meats and drinks, but spues them out of his mouth if by any means one succeeds in forcing them upon him.

As to the medicinal treatment of hydrophobia—the less there is of this the better. In most cases there are three ways of administering drugs which are available: by the rectum, by inunction and by hypodermic injection. In many cases medicines can at

times be administered by the mouth. In choosing his remedies and deciding upon the quantity to be given, the practitioner must not be tempted into meeting the violence of the disorder with opposing violence of medication. Whatever plan of treatment be adopted it must be temperate. No use of large doses of morphia, chloral, atropia, curare, chloroform, or such-like, has ever proved of value. Here, if ever, it is the "soft answer" which may be expected to "turn away wrath." I think the use of moderate doses of cannabis Indica may prove useful. Alcohol, in small and repeated doses, taken in hot water, I think might prove a valuable remedy,—it being understood that I presume the exclusion of an inflammatory disorder with hydrophobia merely as a concomitant. I am inclined to think also that something might be expected of the method of "mixed narcosis," proposed for surgical operations, in 1877, by Nussbaum. In this method a dose of ¼-½ gr. of morphia is injected hypodermically, and in a few minutes chloroform is given by inhalation. If this could be done without too great resistance on the part of a patient with hydrophobia, I believe it would prove very advantageous. These things, then, I would recommend: moderate doses of chloral or cannabis Indica at the very beginning of the seeming development of the disorder; later frequently repeated moderate doses of whiskey or brandy in a little hot water, given by the mouth if possible—and this is oftener possible than most persons would suppose—by the rectum, if necessary. Last of all, the plan of injecting subcutaneously ¼-½ gr. of morphia (adult dose), followed by the inhalation of chloroform, might be tried. The use of prolonged hot baths I believe may do good, not as a specific, as some have foolishly supposed; but by the activity of the circulation they produce and their invigorating effect.

In all the treatment of hydrophobia, the cardinal principle should be that the medication must be reduced to a minimum. Indeed, I have no doubt that better results than have been attained by any method heretofore recommended would be secured if no medication at all were employed. There can be no doubt that it is true, as Decroix asserts, that the ordinary methods of treatment act adversely to the interests of the patient, and that the rational plan is restricted to two indications: to protect the patients from all causes of excitation; to procure for them all the moral and material satisfactions compatible with their state.[1] "By adopting this method," Decroix adds, "there will be obtained a natural hydrophobia more benign than the artificial hydrophobia, which is a consequence of the incendiary medication, and cases of cure will certainly be less rare than in the past."

Only last year, M. Barthélemy called attention to the suggestions of Decroix, and emphasized them by a reference to the practice of M. Abadie, a veterinarian of the Department of the Loire Inférieure, in the treatment of tetanus in horses. The latter, after observing the lamentable failure of active treatment, adopted with marked success the plan of letting the animals strictly alone in a darkened room, from which all sights and sounds were rigidly excluded. Further, M. Barthélemy recalls the method adopted by M. le Docteur Bouley[1] to control violently hysterical patients. This consisted in shutting them up in a padded room, from which all light was excluded. "C'était," he says, "ce que notre maitre appelait le traitement par astimulation." From this he thinks a profitable lesson may be drawn as to the management of cases of hydrophobia.[2] This is undoubtedly true, and it seems strange that this obvious indication of the success which has often followed the administration of absurd and inefficient nostrums, namely, that no medication is better than active treatment, has for so many years failed to secure the application in teaching and in practice which it should have had.

In concluding, I would state my belief that the uncertainty and despair which prevail in regard to the treatment of hydrophobia, are to be attributed largely to the commonly held opinion as to the specific nature of the disorder. I have elsewhere stated the conviction to which observation and a laborious study of this subject have led me, namely, that hydrophobia is not a specific, inoculable disease; and that the dread of swallowing, and the other phenomena which are known as hydrophobia, do not indicate a specific morbid process, but are mere symptoms of a variety of disturbances of the animal economy, some of these being of an organic, others of a purely functional (in the usual sense of this term) character.[3] This attitude has been so often misstated as a denial of the existence of hydrophobia, that I think it important to say that I do not deny that there is a set of symptoms which, for want of a better name may, without great impropriety, be called "hydrophobia." What I deny is that these symptoms depend upon a specific virus derived from a rabid animal. It is undeniable that the symptoms of hydrophobia may *follow* the bite of a dog suffering with what is called rabies; but so they may, in most typical form, the bite of one that is simply angry, or not angry at all, and quite healthy, or of a man who is simply angry, or they may arise in the progress of a variety of diseases, or spontaneously as the result of fear. In all these cases the phenomena and the issue are exactly the same. There can, therefore, be nothing specific in the saliva of a so-called mad dog, unless the word "specific" be given a new meaning to suit this particular case.

After a very careful study of the literature of hydrophobia from the earliest times, and after some personal experience, I have therefore come to the conclusion that the specific theory is false, and that the view that hydrophobia is merely a symptom and not a disease, offers the only thread which can guide one through the labyrinth of facts and theories, somewhere in the maze of which the truth in regard to it lies hid. Equally do I believe that the adoption of this opinion offers the only hope for a rational and satisfactory plan of treatment. For 2,000 years, or perhaps even longer, the specific theory has had prac-

[1] Decroix, M. E. Note sur la curabilité de la rage. *Bul. de l'Ac. de Méd.*, 20 Juin, 1882. P. 699.

[1] This physician must not be confounded with M. Henri Bouley, the veterinarian, who is famous for his studies of rabies.

[2] Barthélemy. Le Hoang-nan et le rage. *Bul. gén. de thérapeutique*, T. cv, 1883. Pp. 147-160.

[3] See Trans. of the College of Physicians of Philadelphia, 3rd ser., vol. vii., pp. 17-35. New York *Med. Journal*, Dec 29, 1883, vol. xxxviii, pp. 707-711.

tically undisputed sway in the world, and after all there is not a man of the nineteenth century who can propose a method of treatment, founded upon it, more rational or more efficient than those which were used in the stumbling infancy of the art of medicine. Cælius Aurelianus was as sensible as Dr. Rush, and Celsus was no whit behind Sir Thomas Watson. The most enlightened of its adherents come before the world offering in one hand uncertainty and contradictions, in the other despair. This remarkable paradox I attribute to the fact that, wearied with following the luring *ignisfatuus* of the specific theory, men have come to believe that the nature of hydrophobia is beyond human understanding. The cause of science and the cause of humanity demand, I believe, that we shall let this theory go. It will not be lost. Such things may be trusted to come back. But truth lies at the bottom of a well. And, if we will leave this subject to the generations which shall follow us in a clearer light than that in which we have received it, it must be by sweeping away the marvellous and fabulous features which have come to be accepted as essential parts of it, and by rigorously applying to what is left the well established rules of common experience and analogy. Then, and then only, will it come to be known what hydrophobia is, and how it should be treated.

THE SIGNIFICANCE OF BLOODY DISCHARGES FROM THE BOWELS IN YOUNG CHILDREN.

BY FRANK WOODBURY, M.D., OF PHILADELPHIA.

Read in Section on Diseases of Children, American Medical Association, May, 1884.

The occurrence of blood in the alvine discharges of a young child, whether in amount large enough to constitute actual intestinal hæmorrhage, or existing only as a few small clots or streaks of blood, is a symptom which naturally excites alarm in the minds of those having it in charge, and usually is the signal for prompt appeal for medical aid. Whether rightfully or not, in an individual case, it may be considered as the rule that this accident in childhood is of much more serious import than in adult life, although in some instances the pathological conditions are identical. On account of the gravity and urgency of the morbid states involved, the opportunity for the exhibition of skill in diagnosis, and the possibility of brilliant results from appropriate treatment, I would regard this class of cases as second to none in interest or importance to the general practitioner of medicine. It was with this thought in mind, that I determined to submit this subject of The Significance of Bloody Discharges from the Bowels in Young Children for discussion to-day. I do so the more willingly because, so far as I can learn, this subject has not been considered at any previous session of this Association, and because many of our text-books on diseases of children either observe complete silence upon this symptom or make only incidental and altogether inadequate mention of it as complicating certain conditions.[1]

Like hæmatemesis, bleeding from the intestines is merely symptomatic; its causes vary greatly in site, nature and gravity. A correct and promptly rendered diagnosis in such cases sometimes furnishes a crucial test of skill in the physician. I need not dwell upon its importance, since we recognize the fact that a few hours' delay may cost the life of the patient. In a case in which the range of remedies is from laparotomy to worm-lozenges, delay and error in judgment are alike dangerous.

The term Melæna (*Μελαινα*) was anciently used to indicate the discharge of a black material from the stomach, or the bowels, or both. Since the action of the digestive fluids upon blood effused into the small intestine, causes it to lose its ordinary physical characters and to change to a black, tarry substance, the propriety of the application of this term to many cases of intestinal hæmorrhage is evident. But, as the blood occasionally preserves its red color; and, on the contrary, black discharges may be due to other causes than hæmorrhage (*i. e.*, the administration of certain substances such as bismuth, animal charcoal, etc.; or, more rarely, to altered secretions from the mucous membrane of the intestinal tract,[2]) I have preferred to employ the term "bloody discharge," as being more comprehensive than either melæna or intestinal hæmorrhage, and being universally recognized as a symptom, will be free from a possible objection on account of being mistaken for the title of a pathological condition.

Blood may also appear in the discharges, from a lesion existing in the stomach, œsophagus, or upper air passages—or even from a source external to the patient, being taken with the food, as when an infant nurses from a cracked and bleeding nipple—but for our present consideration, it will be sufficient to limit the consideration to lesions below the pylorus; and the brief time at my disposal warns me that a few only of the leading diagnostic features of the morbid states concerned can be presented for discussion.

The first question that the clinician, when confronted with such a case, attempts to solve is: What is the site of the hæmorrhage? and secondly: What is its cause? Let us pass briefly in review some of the morbid states giving rise to bloody discharges from the bowel.

Commencing with the lower extremity of the intestinal tube, we recognize several local conditions which may be accompanied by hæmorrhage.

[1] It is only just to state that Dr. J. Lewis Smith, of New York, in his admirable work on Diseases of Infancy and Childhood, gives the best consideration of this subject that I have met with among our systematic treatises.

[2] In a foot-note to the article on Melæna in Copeland's Dictionary of Medicine, New York, 1846, vol. ii, page 954, a case is reported of an anæmic child, three months old, which had melæna without intestinal hæmorrhage: there were black discharges during life, and found after death along the whole course of the intestines, which was apparently a morbid secretion from the mucous follicles. The condition appeared to be an abnormal excretion of carbon, in some way dependent upon a congenital absence of the gall-bladder and hepatic ducts.

In cases where a doubt exists as to whether the black material excreted contains blood or not, the question may be solved by simply diluting the discharge with water, which will bring out the red color of the hemoglobin if it be present. The microscope or the spectroscope will furnish the decisive test of the presence of blood.

Venous hemorrhoids may occur in young children. These may be examples of nævus, or may come under the class of internal hemorrhoids. Notwithstanding the fact that cases of supposed piles in infants usually prove to be polypi upon closer investigation, Allingham[1] reported a case, in a boy three years of age, which had bloody discharges from the rectum, and upon examination, thin vascular piles were found to be the cause of the bleeding. Sedgwick[2] and Syme[3] have also called attention to the possible existence of piles at an early age of life. Condylomata need not be confounded with hemorrhoids; these are not rare in children, and may be caused by irritation, uncleanness or worms; they are not necessarily due to syphilis.

Fissure of the rectum is a rare cause of bloody discharges in children. Allingham mentions a case in a boy 4½ years of age.

Prolapse of the rectum is less frequently accompanied by bleeding in children than in adults, but it is sufficiently common to warrant consideration. It is usually caused by weakness of the sphincter, following prolonged diarrhœa; or it may be due to constant straining, caused by a reflex irritation, such as from a stone in the bladder, a contracted prepuce, or polypus.

Polypus of the rectum is more frequent in children than is generally supposed, and is usually announced by recurrent attacks of bleeding. Bryant[4] says that is is the principal cause of hæmorrhage from the rectum. Therefore, repeated attacks of intestinal bleeding should lead to a direct examination of the bowel. When found, the polypus may be broken off by the finger nail without inducing hæmorrhage. Its usual site is inside the internal sphincter, from two to six inches within the bowel. The pedicle may be several inches in length. Gross[5] recommends seizing the tumor with the forceps, if not very vascular, and removing it by torsion; if vascular in its appearance, "the safest plan is to tie it and let it slough off." It is reported that Bryant saw twenty cases, all in children less than two years of age, which were operated upon successfully.[6]

Foreign bodies may cause ulceration and hæmorrhage; various substances, such as pieces of bone, glass, oyster shell, etc., may be forced or impacted in the rectum, either swallowed by the child or introduced into the rectum, by mishap or malice.

Traumatism. Bearing in mind the facility with which fatal hæmorrhage might be induced by wounds of the intestine and adjoining structures, it might be the means employed for criminal purposes. In cases of acute hæmorrhage from the bowel, in a child hitherto healthy, local examination of the part, both before and after death, should not be neglected.

It may be proper to say here that a hæmorrhage may be sufficiently profuse to cause death, may occur without any discharge of blood externally. J. L. Smith refers to a case (Bidnar) of a boy 11 days of age, in which the skin rapidly became yellow and cool, respiration scarcely perceptible. He died on the twentieth day of exhaustion, and it was found that the symptoms were due to a concealed intestinal hæmorrhage.

In *dysentery and entero-colitis* of sufficient severity, blood will often appear in small quantities in the stools during the height of the inflammation; where it occurs in larger quantities it indicates ulceration, and in chronic colitis the discharges may consist of pure blood. Without stopping to discuss the parasitic nature of ordinary dysentery, I would notice that *mycosis* has been assigned as the cause of dysentery with bloody discharges. Lambl reports the case of a child 2 years old, which died of enteritis and hæmorrhages from its intestines, where *amœba coli* were considered to be the cause. Experiments made by Lösch favor the view that the dysentery in such cases is primary, and that the amœbæ appear later and maintain the morbid state. We are without information as to the source of the amœba.

Intestinal worms have been mentioned as causing the appearance of traces of blood in the discharges, mixed with mucus.

Intussusception of the bowel, either by descent of part of the ileum through the ileo-cœcal valve, or elsewhere in the course of the bowel, is very commonly accompanied by bleeding. This symptom, in a case of constipation, obstinate vomiting, with tender, swollen abdomen, in which there is a sausage-shaped tumor may be felt in the course of the bowel, indicates the occurrence of an intussusception. In such cases the injection of large quantities of warm water will usually be successful in reducing the invagination. Etherization by the rectum might be useful, followed by distension of the bowel by air. The knee-elbow position will materially assist the enemata in restoring the bowel to its normal relations. Should these measures fail, after several attempts, laparotomy offers better chances of recovery than to wait for the sloughing of the intestine, which sometimes does occur. Although early operation by modern methods of opening the abdomen, generally offers good prospects of success, yet this result can not always be promised. Godlee[1] reports a successful case in an infant of nine months, in two others the patients died. He calls attention to the fact that the intussusception does not always begin at the ileo-cœcal valve; although, according to Bryant, (*loc. cit.*), this is the most common site in infancy and childhood. The condition may be gradually established without interfering greatly with peristalsis and defecation, or it may rapidly give rise to symptoms of complete obstruction of the bowel. Such acute cases have urgent symptoms and require, usually, early operation. In the former, prompt operation is not so imperative. Mr. Hutchinson, of London, opened the abdomen of a child, two years of age, on the thirtieth day of the symptoms, and restored the invaginated bowel with a successful result.[2]

Ulceration of the small intestine may be due to

[1] Dieases of the Rectum.

[2] London *Medical Record*, 1867, v. i, 495.

[3] London *Medical Record*, 1853, vol. ii.

[4] Practice of Surgery (American edition), Phila., 1881, p. 537.

[5] System of Surgery, 1872; vol. ii, p. 648.

[6] Dictionnaire de Med. et de Chirurgie Pratique, vol. xix. Article on Intestinal Hæmorrhage.

[1] Clinical Societies Transactions, vol. xvi, p. 55.

[2] Med. Chir. Transactions, vol. lvii, 1874.

sloughing of necrosed follicles in the course of simple catarrhal inflammation, or it may be tubercular in its origin. In the course of tubercular meningitis, tubercular ulcers may occur in the bowel; and in tubercular peritonitis the occurrence of diarrhœa and offensive stools, with the discharge of blood in small clots, is very suggestive of accompanying ulceration of the bowel (Eustace Smith[1]).

The occurrence of such a hæmorrhage may give rise to the suspicion of typhoid fever being present, but the clinical history of the case will afford the means of distinguishing the two diseases.

The preceding conditions have been, principally, those referable to definite lesions of the large and small bowel. We shall now consider a few disorders less localized in their nature.

Congestion of the mucous membrane, with or without accompanying catarrhal inflammation, is quite common in young infants, and occasionally causes bloody discharges. This congestion may also be secondary to diseases of other viscera. Mosler states that chronic diseases of the spleen are liable to be complicated with diarrhœa. He also says: "The phenomena of irritation of the intestinal mucous membrane are produced in leucocythæmia and its allied conditions by the accompanying lymphoma. At other times it is a congestive catarrh of the intestinal mucous membrane. The stools contain large masses of mucus and pus, and are not infrequently mixed with blood; dark, tarry blood is evacuated from the stomach, as well as from the intestines. (Ziemsen, Encyclopædia, vol. viii, p. 373).

Hyperæmia may be due to disorder of the liver or its imperfect development. Hepatic cirrhosis has been observed in young children, as a cause of intestinal hæmorrhage, by Reynolds,[2] Murray,[3] and others. Weber met with a case in a new-born child.[4] Occlusion of the portal vein is also noted as a possible cause by Budd.[5] Embolism of the umbilical vein and its branches causes congestion of the intestines by obstructing the portal circulation. Lederer reports eight cases of intestinal hæmorrhage from this cause, five of which were also accompanied by umbilical hæmorrhage.[6] Embolism of the branches of the umbilical vein may also lead to the formation of small ulcers in the intestinal tract.

There still remain for consideration the class of cases in which the pathological condition is not well understood. It may be connected with some disorder of the blood. Here may be appropriately considered those peculiar cases of hæmorrhage from the bowel coming on in the first few days of life, generally from the first to the sixth day, which are known as *melæna vera* or *melæna neonatorum*.

Attention has been pointedly directed to these by Billard,[7] Croom,[8] Rilliet and Barthez and others. The following will serve as an illustration: A female child of healthy parents, born after an easy labor, was apparently well until 35 hours after birth, when an intestinal hæmorrhage occurred, and the little patient died, ten hours later, of exhaustion. At the post-mortem no cause for the hæmorrhage was found; no trace even of organic lesion was detected.[1] In such cases the congestion has been attributed to a plethora, and it has even been recommended that the ligature be removed and some bleeding be allowed from the umbilical cord in order to relieve this hypothetical condition (Billard). It is more probable, however, that the intestinal congestion is caused by collateral hyperæmia associated with some disturbance of the lungs or heart; for Ebstein has found that suspension of respiration in animals produces congestion and extravasation of blood and ulceration in the mucous membrane of the alimentary canal. Of twenty-two cases reported by Rilliet and Barthez, twelve recovered. Probably, as suggested by Day, some of these were cases of pressure of the child's head during tedious labor, and congestion of the venous system from the difficulty in establishing respiration at birth.

Cases of enterorrhagia attributable to *hæmophilia* have been published by Laycock,[2] Sedgwick,[3] Gould,[4] Huss,[5] Cousin,[6] and others.

In such cases the peculiarity is generally known to exist in some other member of the family.

Some cases of *melæna neonatorum* seem to be really due to *purpura hæmorrhagica*; and a number of authorities have given weight to the opinion that in others it may be due to a general cachexia, associated with syphilis. There is good reason for doubting, however, that syphilis in the parents can cause the hæmorrhagic diathesis in the child.[7] Such cases are probably secondary to disease of the blood-vessels, or liver, or both.

Blood sometimes occurs in the discharges during the specific fevers from congestion or ulceration of the mucous membrane. It is only of late years that typhoid fever has been generally acknowledged as occurring in infancy, although Rilliet called attention to it in 1840. (Thése de Paris, 1846).

Typhoid fever sometimes occurs within the first year of life, but is rare until after the expiration of the second year, being more frequent between the ages of eight and eleven years. Still, Meigs and Pepper have met with well-marked instances at the age of 18 or 20 months.[8] Typhoid fever ulceration being unusual in children, this must be a very remote cause of the appearance of blood in the discharges.

Attention has recently been directed to cases of visceral rheumatism in the adult. I met with a case last year in a child, which I may briefly mention. It was that of a boy about 8 years of age, who, during the progress of an attack of acute articular rheuma-

[1] Clinical Studies of Dis. of Children. London, 1876, p. 277.
[2] *Medical Times and Gazette*, 1866. Vol. i, p 35.
[3] *Lancet*, 1863, Vol. ii, p 225, and 1875, vol. i, p 698.
[4] Steiner, Diseases of Children, by Lawson Tait.
[5] *Medical Times and Gazette*, 1860. Vol. i, p 593.
[6] Quoted by Smith *loc cit*, from *Zeitschrift für Kinderheilkunde*, 1877.
[7] *London Medical Record*, 1853. Vol. ii, p. 115.
[8] *Medical Times and Gazette*, 1880. Vol. ii, p. 480.

[1] *Medical Association Journal*, 1854. Vol. i, p. 532.
[2] *Med. Times and Gazette*, 1862, vol. i, p. 152.
[3] London *Med. Record*, 1861, vol. ii, p. 206; 1867, vol. i, p. 492.
[4] *Med. Times and Gazette*, 1858, vol. i, p. 19.
[5] London *Med. Record*, 1867, vol. i, p. 492.
[6] *Med. Times and Gazette*, 1869, vol ii, p. 277.
[7] Peterson. Ueber Syphilis Hæmorrhagica Neonatorum. Vierteljahrs. für Dermat. ü Syphilis, 1883, p. 509.
[8] Practical Treatise on Diseases of Children. Philadelphia, 1877, p. 827.

tism, at about the fifth day was seized with obstinate constipation, with discharge of blood from the bowel. This, with the occurrence of vomiting of everything taken into the stomach, even of small quantities of ice-water, and great restlessness, led me to suspect intestinal obstruction. A tender spot was found in the left hypochondrium and near the umbilicus, but no well-defined tumor was detected. He was treated by morphia by the mouth, and by large hot water enemata, which were returned tinged with blood. The third or fourth injection was followed by fœcal discharge, and the condition was relieved. The patient recovered finally, and was seized with chorea during convalescence. If there was actually an intussusception in this case, I believe that it was favored if not caused by a local manifestation in the intestine of the rheumatic poison.

I trust that in bringing to a conclusion this hasty review of an important subject, we are impressed by the variety of the conditions upon which these bloody discharges may depend, and especially by the necessity of careful physical explorations wheer the symptom persists.

DISCUSSION.

Dr. J. Lewis Smith said the pathological state is different in the different diseases. The most frequent and common causes (when not mixed with mucus) are purpura hæmorrhagica and intussusception. The latter is an important matter. There is none more important in diagnosis. This occurs chiefly at the ileo-cœcal valve, or it can occur at some point below, become wedge-shaped, congested, and blood oozes. There are two common points. These may either be at lower part of ileum or in the colon. Congestion becomes so great that hæmorrhages occur. The color of the blood is dark-red, with mucus. When tenesmus is present, it can be mistaken for dysentery. Instead of mucus, pure blood can be discharged every few moments with tenesmus. This disease must be recognized early, as the diagnosis is of importance. In these cases, warm water injections into the rectum is good treatment. The diagnosis can be made without a tumor being present, by blood appearing without mucus.

The next principal cause—morbus maculæ or purpura hæmorrhagica, is most common in large cities and hospitals, among broken-down and cachectic children, but is also found in well nourished ones from six to eight months old. The changes occur in the capillaries and not in the blood. This is the true condition, as is proved by microscopical examinations. Blood is allowed to transude. Knows no case where hæmorrhages resulted from worms, but this could take place where the bowels were ulcerated and the worms irritated the places so diseased. Typhoid fever occurs in children, but ulceration in children, as a rule, is not sufficient to give rise to hæmorrhages. In the majority of these cases there is no tenesmus.

Dr. S. S. Adams said that Dr. Woodbury failed to bring out the important point of the dangerous period of these bloody discharges. He said that the cessation of the bloody discharges was really the signal of danger. He said that some time since, Dr. Busey wrote an admirable paper on "Thrombosis of the Sinuses of the Dura Mater in Fatal Cases of Dysentery in Young Children," in which he showed that when the blood ceased to appear in the stools, then the critical moment arrived. Dr. Adams had superintended the post-mortem examinations made in the cases cited, and, as Dr. Busey had expected, thrombi were found in the sinuses. In such cases as Dr. W. had cited, the stimulation should be begun early and diffusible stimulants freely administered. In young children, the fontanelle is our guide. So long as it is depressed, we need have no fear in freely stimulating. Whiskey, camphor, or ether should be given.

Dr. Fry remarked that he had noticed during attacks of entero-colitis, that the occurrence of hæmorrhage from the bowels marked a favorable epoch in the disease. It probably acted by depurating the congested mesenteric vessels.

Dr. Woodbury. The time was not long enough to go into the subject more closely. Would recommend digital examinations in all cases.

ON THE TREATMENT OF TYPHOID FEVER.

BY S. K. JACKSON, M.D., NORFOLK, VA.

Read in Section on Practical Medicine and Materia Medica, American Medical Association, May, 1884.

My apology for occupying the valuable time of this Section must be found in my conviction of the importance of the subject I propose to discuss. I know it is thought trite and hackneyed, but the discussion of it cannot be considered as finished until there be a better agreement among us as to the treatment of this disease, or until the mortality from it is diminished much below its present rate. It is claimed to have been reduced from the 18 to 20 per cent. of a half century ago to 10 or 12 per cent.; but these lowest figures are still too high, and it is to be hoped that the profession will not be satisfied until there is a much greater reduction.

My object is not to boast of any great success in managing this disease, but merely to call attention to a line of treatment which has furnished results very different from the recorded experience of others; a treatment suggested by the recognition of several pathological conditions, which, though long since demonstrated and, I believe, generally admitted to exist, have been entirely ignored by the profession when looking for indications of treatment.

To prove this assertion it is only necessary to enumerate the various means at different times resorted to for combating this disease; means not only not indicated or called for, but oftentimes actually injurious.

The limits of this paper will permit me to recall but a few of them. Blood-letting, urged by Louis—free evacuations—tartarized antimony — calomel—then the "expectant" plan of treatment, the do-nothing plan, leaving all to nature—then follows the suggestion of phosphoric acid as a febrifuge—next came the alum treatment of Barthez—then the confi-

dent assertion that large and repeated doses of quinine was the one thing needed—then came the announcement that the latter did no good, but actually did harm—next occurred a revival of the mercurial treatment pushed to salivation—then turpentine is lauded as the remedy—then succeeds a revival of quinine in large doses, with conflicting testimony *pro* and *con;* some asserting that it produced alarming prostration, others claiming it as valuable for reducing temperature. Next looms up the hydropathic treatment, by many lauded, but considered by others to be liable to grave objections.

While all this conflict has been waged, I have been pursuing one plan of treatment for the past thirty-five years, from which I have not had any reason to deviate; and there is not included in it one of the suggestions contained in the above enumeration. The result of this plan I am reluctant to state, its value any one can determine for himself.

Among the first and most prominent pathological states which early attracted my attention as furnishing indications of treatment, was the demonstrated nitrogenous waste of the system—the diminution of fibrine—the deficiency of urea, and all nitrogenous excretions. If it were not the case that there was a deficiency of the nitrogenous constituents of the blood, it might be supposed that these excreta were retained in the system as in the case of desquamative nephritis, but their absence is evidently due to the fact that there are none to be thrown off; we have no signs of uræmic poisoning, even the coma of enteric fever has never been attributed to that cause.

Into the cause of this nitrogenous deficiency I cannot now inquire, but will only suggest one or two probable factors.

The first is an inability to digest nitrogenous food, caused by a deficiency of the digestive fluids, which deficiency is due to the fact that all the glands and glandular follicles whose duty it is to secrete these fluids, are in such a state of engorgement or inflammation as to render them incapable of performing their function.

Another possible, if not probable, cause of this nitrogenous waste is due to the consumption of this important element by the parasitic organism which is the acknowledged etiological factor in the production of enteric fever. That this microzoon is a nitrogen-feeder, is evident from the fact that he lives and is developed in nitrogenous matters, in urea and all nitrogenous excreta. These furnish its peculiar pabulum, in them it is generated and thrives. Old timbers saturated with urea, the rotted logs of a country cabin against which men have constantly micturated, have been known to be fruitful sources of this disease. The most serious outbreak of typhoid fever I have ever known, occurred during our late war (1862) in a Mississippi Brigade, who were encamped at the foot of a mountain-slope where a large amount of leaf-mould had been for years accumulating. This spongy mass when saturated with their urinary deposits, and probably in a state of fermentation, caused the most malignant epidemic of this disease that has occurred in my experience. I hope, some day, to obtain access to the official records to ascertain the great numbers who fell victims to it; they are numbered by hundreds. I hope I may be pardoned for mentioning here, that of 223 cases that were taken under the treatment I am now advocating, not one died. The Brigade alluded to, that of Gen. D. H. Hill, encamped at the foot of a spur of the Catoctin Mountain, two to three miles northwest of Leesburg, Loudoun Co., Va., within forty miles of where we now stand.

If further proof be needed that this microzoon is a consumer of nitrogen, it is furnished by the ammoniacal exhalations emitted by a typhoid fever patient, from the breath, the skin, as well as by the urine, which, when freshly passed, as is known to all, emits the odor of ammonia, like stale urine in a state of decomposition.

These exhalations are undoubtedly due to the decomposition of the nitrogenous constituents caused by this micro-organism.

This pathological condition, in my opinion, furnishes us with the most important indication in the treatment of this disease, and has shaped my practice during the long period mentioned.

It is clear then that our aim should be to supply this nitrogenous waste. How is it to be done? By nitrogenous food, you will say; a very rational way of accomplishing that desirable end, were it not for the utter impossibility of digesting and assimilating this food, to which we have already alluded. There is only one way, known to me, of effecting this purpose, and that is by the free administration of AMMONIA, even to saturation.

Fortunately, this nitrogenous base furnishes us with salts of such different therapeutical powers that we have no difficulty in finding one adapted to any and every stage of the disease and every probable condition of the patient during its existence or progress. It supplies us in the nitrate with the most sedative salt we possess, and in the carbonate, with the most stimulant salt in our Materia Medica. The only other salts of ammonia I have been in the habit of using in the disease are the acetate and the hydrochlorate, in conditions which will be presently pointed out.

The high febrile condition of the early stage, high pulse, high temperature, etc., calls imperatively for the nitrate, which in 10 or 12 gr. doses will reduce the highest temperature I have met with, down to about 102° F. At this degree, which is not a dangerous heat, it can be kept during the whole course of the disease.

It is to be expected that there may be some fluctuation in this contest between the heat-producing and heat-allaying agents, but I have never known an instance in which, during the administration of this salt, the temperature rose again over 103°, after having been once reduced.

As the disease progresses, when there is less demand for so powerful a sedative, especially if diarrhœa supervene, I substitute the acetate for the nitrate of ammonia, and administer at the same time acetate of lead and opium. If nervous symptoms show themselves, tongue incline to become coated, teeth dry

and covered with sordes, I resort to the carbonate of ammonia in combination with potassa chlorate; and should coma occur, my sheet anchor is the hydrochlorate of ammonia, which I have never known to fail in bringing a case out of that condition.

But I must remark here, that I have seldom (I might say never) seen coma occur in a case where the treatment, detailed above, has been energetically pursued; and it has been mostly in badly nursed cases, or those under a different course of treatment, that I have seen it at all. I have known them to be brought out of it when apparently almost in *articulo mortis*, when all treatment had been stopped and the case relinquished.

With regard to the delirium, which I have always considered as due to a want of nourishment of the brain, the delirium of starvation, it is soon quieted and controlled after the inauguration of this ammoniacal treatment.

I remember a case of a young man, who was found by his friends near the army, about 200 miles from his home, in a state of wild delirium, and in this condition brought home far advanced in the disease, and who became quieted in twenty-four hours, and made a good recovery. If wanderings occur during the treatment, it is owing either to too small doses, or to too long an interval between them. I have known patients to request that the doses be brought closer, on account of a confusion of mind they felt towards the close of the interval between them.

The tympanitis, as everyone knows, is easily relieved by turpentine stupes, turpentine enemata, or by a few drops of turpentine regularly administered by the mouth. With regard to the use of hydrochlorate of ammonia in the state of coma, it suggested itself to me as a solvent for the thickened envelopes of the blood-corpuscles, which some pathologists contend exist in this state, preventing the nourishment of the brain even if the blood were in an otherwise normal condition. Whether this be its *modus operandi* or not, the effect of it is almost miraculous in this condition.

Thus it will be seen that there is no period, no stage of the disease, in which I am not administering some one of the salts of ammonia. Why should I resort to cold baths or cold effusion to reduce the temperature, when I can bring it down and keep it down by means so much simpler, more certain, safer and more philosophical, and not liable to a consequent reaction?

With regard to quinine, I have years ago abandoned it, from the full conviction, in which I agree with Professor Bartholow, that it is not an efficient germicide in this disease. I recognize it as, *par excellence*, the antidote to the malarial poison; but since the organism producing enteric fever differs so essentially from this, it requires for its destruction a germicide of an entirely different character. I have shown this parasite to be a nitrogen-feeder, and an exhaler of ammoniacal gas; but that which produces the malarial fevers is a carbon-eater, and exhales carbonic acid gas. It is not to be expected, then, that the same agent would be equally efficacious in destroying both.

The subject of the selection of germicides has not been studied as its importance demands, and I know no more interesting or profitable field for cultivation. The germ theory of disease has necessitated new lines of treatment, and the application of new remedies, or old ones with new intent. The investigation of the causes of diseases is running ahead of the study of the means necessary to destroy them, whereas it is of the highest importance that they should progress *pari passu*.

In a paper recently read before the Virginia State Medical Society, I have contended that we are furnished with a key to the detection of our germicides by a law, which, as far as I know, I have been the first to enunciate. I claim that it is a law that no organism can live in its own excreta, in the products of its own vital processes. When carbonic acid gas is the excretory product, how certainly does carbonic acid destroy the life that produced it. If alcohol be the result of the life-process, what better agent have we for arresting that process than alcohol itself, and how generally is it used for that purpose. If sulphuretted hydrogen be the exhaled excretion, all acknowledge the efficacy of sulphur and its compounds to arrest the decomposition giving rise to it. So, also, if ammonia be the result of the vital processes of an organism, as we have claimed in the case of typhoid fever, then by this law we have a right to infer ammonia to be the proper and efficient germicide. This furnishes us with an additional indication for employing the salts of this nitrogenous base, for it not only supplies the nitrogenous waste, as we have contended, but also destroys the vitality of the organism which causes it.

On this principle we would select quinine, on account of the large quantity of carbon it contains ($C_{20} = 240$, $H_{24} = 24$, $N_2 = 28$, $O_2 = 32 + H\,O_2$), as *the* germicide for an organism the excretory product of whose life is carbonic acid gas; but never for an organism whose excretion was ammoniacal gas ($N\,H_3$). We see then why it is that quinine is not an efficacious germicide for the enteric-fever parasite, and how it is that ammonia fulfils the two important requirements mentioned above.

If this be a law, as I have stated it, may not the protection of the system from a second attack of contagious diseases generally, be accounted for, not on the almost universally received theory that the system during the first attack becomes exhausted of the pabulum necessary to the life and development of the parasitic organism producing these diseases; but rather to the hypothesis that there is left in the system during the first attack, some excretory product which, being never eliminated, forever thereafter acts as a poison to that organism, inhibiting its vital processes. This appears to me to be the most probable and most philosophical explanation of this mysterious fact.

My experience with this fever when treated by the plan here pointed out, enables me to expect that if a case be recognized as one of enteric fever within three days of its inception, that it may break at the end of the 1st septenary. If it be not recognized as such until the 4th or 5th, it can not yield before, but may at, the end of the 2d septenary (14th day).

If the treatment has not been commenced before the beginning of the 2nd septenary, the fever can not break before the end of the 3rd septenary (21st day); that it will yield on that day, if it has not yielded before, is almost an absolute certainty.

With regard to *diet*, nothing has so surprised me as to see recommended articles of food which for years I have most sedulously avoided, because of having seen them do infinite harm in this disease.

How a physician who has had any experience with this form of fever can recommend farinaceous or starchy articles of food, I am at a loss to understand. The disturbances they occasion, which must have been noticed by every one, have given me more trouble than anything connected with these cases. They are easily understood when it is remembered how entirely absent are the salivary fluids, or any of the fluids containing diastase, by which is prevented the conversion of amylaceous food into dextrine and grape sugar. Such food therefore is not capable of assimilation, but soon after its admission into the stomach undergoes a fermentation which adds to the gaseous distension which may have occurred from other causes, and seriously complicates the case. I regard milk not only as the safe, but as the only useful article of diet, and this I allow *ad libitum*. Even if a larger quantity is taken than can be assimilated, it does no harm, though it is often passed unchanged.

I have never allowed the animal broths in the early stages of the disease without having reason to regret it. So that my plan is to allow nothing but milk, until such time as I perceive evidences of a return of the secretion of the digestive fluids. The chewing of lean meat, swallowing only the juice of it, is a favorite way of returning to animal food, as the act of mastication may stimulate the flow of the salivary fluids.

I fear that the limited time allowed me has compelled such a condensation of so extensive a subject, as to make my paper unsatisfactory. It must be considered, however, merely suggestive, as I have been able only to hint at the salient points of treatment, leaving it to the ingenious practitioner to fill up the details.

Hoping that this treatment of this serious disease may prove as successful in other hands, I leave it with you for trial.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

ON THE THERAPEUTIC DIFFERENCES IN ELECTRIC CURRENTS, AND ON THE ELECTRO-DIAGNOSTIC EXPLORATION OF THE EXTENT OF THE FIELD OF VISION. —C. Engelskjön has an extended article on this subject in the *Nordiskt Medicinskt Arkiv*, which is summed up as follows:

1. The experiences with patients suffering from cutaneous vascular neuroses, have demonstrated that in their local application upon the skin of the subject, with the use of the electric water bath, the two forms of electric currents exercise an inverse action upon the vessels, in that the faradic current dilates the vessels spasmodically contracted, while the galvanic current contracts the vessels that are actively dilated. In conformity with this difference of action, the faradic current produces simultaneously an increase, and the galvanic current a lowering of the temperature. There is no difference in the two poles of the galvanic current.

2. The central application of electricity produces similar effects, in cases analogous to the cutaneous vascular neuroses, so that in certain given cases the relief is due to one only—that is to say, either to the faradic or galvanic current.

3. Comparative observations on patients suffering from *hemicrania and other central neuroses*, have demonstrated that in proper applications the galvanic current acts inversely to the faradic current, in a therapeutic point of view, as one of these currents only will give relief in a case where the other increases the disease. The difference in effect of the two currents upon the subjective symptoms, is in most cases instantaneous and marked. It is possible to neutralize the effects of one by the other.

4. The neurotic affections of the great sympathetic, such as stenocardia, cardialgia, etc., act with reference to electric currents, similarly to the affections of the central nervous system.

5. The author has noted cases that, beyond a doubt, from their clinical condition, were affections accompanied with evident anatomic alterations of the central organs, and which, nevertheless, yielded to treatment in the same way as the neuroses, and were promptly relieved by suitable electric treatment.

6. It is more than probable that the peculiar etiological nature of these cases exercises a determining influence upon the consequent condition of the case in particular, and consequently a knowledge of the etiological conditions in a case is necessary to a suitable selection between the two kinds of current.

7. A diseased condition of the spinal ganglia may act reflexly upon the spinal cord, and give rise to spinal symptoms. In the same way spinal affections are capable of reflex action upon the brain, and of giving rise to cerebral symptoms. Reflex actions proceed *always* from below upwards. It is well to observe here that the organ secondarily influenced by the reflex action should generally be treated by a different current from the organ in which the affection has its origin.

8. The author treats cerebral symptoms by electrization of the medulla oblongata. He places one electrode in the fossa of the ligamentum nuchæ, and the other above the larynx. The spinal symptoms can be treated simply by conducting the electric current along the lower portion of the spinal cord.

9. The increase of morbid symptoms that is provoked by a long-continued use of electricity, so well known, is due to the effect of the current on the healthy ganglionic cells.

10. The electrization of the brain, of the spinal cord, of the ganglia and skin, exercises a powerful influence on the functions of the retina, by, in a given case. the positive current increasing the field of vision, and frequently at the same time increasing

markedly the acuteness of vision. As these effects are, so to speak, immediate, it is possible to utilize them in determining which current is suitable to the case.

11. If we subject for several minutes the hands and fore-arms to the action of warm or cold water, in special morbid cases, the same effect is produced upon the field of vision in the use of the cold water as with the galvanic current, while the warm water produces the same effect as with the inductive current.

12. In their general action on the skin, the cold and warm water exercise, in certain given cases of disease, the same therapeutic effects as the galvanic and faradic currents when used separately, the effects of cold water resembling that of galvanism, and those of warm water being identical with the effects of faradism. If we know the kind of current best suited to a given case, we can indicate the water treatment. *Vice-versa*, the effects of water will indicate the selection of the electric current.

13. There are cases of nervous affections which, while suitable for general electric treatment, are not benefited but made worse by the use of either of the currents in central electrization. It is always possible to relieve a certain number of these cases by electrization of the skin. So employed, the electricity acts in two different ways: 1st, by influence upon the skin itself; 2nd, by influencing the peripheric nerve canals. The two forms of current act inversely in the first case, but not in the second.

14. In using the two currents upon the peripheric nervous circuits in neuralgia, the author has never observed any qualitative difference in their therapeutic activity.

OBSTETRICS AND GYNÆCOLOGY.

Urethral Ectasia or Vaginal Urethrocele.—Professor Santesson describes (*Nordiskt Medicinskt Arkiv*) a case of this rare affection of the female urethra as occurring in a seamstress, 48 years of age, who had passed through two difficult labors, without the use of the forceps, however. The last labor occurred twelve years previously, and from that time she dates her trouble. The first symptoms were itching and heat of the vagina, pain in that organ during coitus and while working, in connection with difficulty in urinating and alternating retention and incontinence.

On examination, the anterior wall of the vagina was found to be depressed at the entrance to the vagina, above and behind the promontory of the urethra, where there was a regular elastic tumor of the size of a walnut. The rest of the vagina and the uterus were in no way abnormal as to size or position. The tumor consisted of a pouch about 3 cm. long, and 2 cm. broad, communicating with the urethra by an opening situated at the junction of the superior with the middle third of the urethra, allowing the passage of a sound of medium size (16). Pressure on the tumor seemed to pass the urine, not to the external meatus, but back to the bladder. A catheter passed readily in the usual way into the bladder, if its point was turned downwards it entered the pouch and would pass no further. If the desire to urinate was not immediately responded to, the urine dribbled away involuntarily, causing acute pain. The urine was of an acid reaction, sp. gr. 1.014, and mixed with a little mucus, but not otherwise abnormal.

Private matters not permitting the time necessary for an operation, the parts were cauterized with nitrate of silver and then with fuming nitric acid, resulting in an eschar which diminished the volume of the tumor, and relieved the incontinence of urine. Three and a half years later the patient returned to the hospital, when an elliptical excision of a part of the vaginal mucous membrane was practised, the edges placed in apposition and united by sutures. Sloughing of a part retarded the cure, but the cicatrix was larger and stronger in consequence. In five weeks' time the wound had healed, and the tumor, firm and contracted, appeared like a solid tumor of the size of the finger. For the four years following there was perfect continence of the urine through the night as well as in the daytime, but negligence and bad habits produced the symptoms anew, and the patient died in the hospital with a puffed and cachectic expression of countenance, œdematous extremities, urethrocystitis and chronic nephritis, and besides specific ecthyma of the trunk and extremities.

There are, in the knowledge of the writer, but six cases of this affection on record, three in France (Toucher, Gillette and Duplay), two in England (Priestly and Lawson-Tait), and one in Germany (G. Simon). The diagnosis does not seem to be difficult, and it can only be confounded with cystocele, which would readily be excluded after a thorough exploration.

With reference to origin and etiology, there are two groups, the congenital ectasias and the acquired ectasias. The first group is not considered here; in the acquired ectasias, there are those formed by a partial dilatation, but more extensive, less closely defined, in a urethra which is normal in other respects, and without a solution of continuity (*diverticula vera*); and those due to a preëxisting cavity (abscess, cysts) situated outside of the urethra, piercing its walls, and in direct communication with it by an opening (*diverticula spura*). The author calls especial attention, in considering the causes of diverticula vera, to the effect of a sudden, intense and somewhat continuous pressure upon a canal surrounded by muscular fibres, as producing atrophy and want of resisting force in the circular fibres of the urethra. The cases already published give the histories of difficult labors, the use of instruments, etc., which could result in contusions and injuries to the parts.

MEDICINE.

Successful Transfusion of Blood in a Severe Case of Uterine Hæmorrhage.—M. Victor Vlemincky reports a case of this nature in *L'Art Medical*. The details are somewhat lengthy, but they are so admirably recorded and of so much interest, that a perusal of them may well repay the trouble.

The case was one of a prostitute, 25 years of age. On April 4 her courses came on, but she continued her occupation, until, as the result of so much sexual excitement, the flow of blood became so serious as to cause her to enter the hospital April 15 for relief. She had a continual flow from the vulva, and every three or four times in the twenty-four hours, she half filled the chamber with liquid blood—no clots. She had already been submitted to the ordinary treatment, the applications of ice over the abdomen, dorsal decubitus, absolute rest, food scanty and cold, and the use of perchloride of iron and of ergotine. This was the third time within a year that she had entered the hospital from this affection, and each time it was due to the same cause. The first time she remained seven weeks, the second time she remained four weeks before being completely relieved. As to her antecedents, she was always well, had a child when 20 years of age, and from the date of her discharge from the Maternity Hospital, had pursued her present occupation. Two years previously she had suffered from gastro-duodenitis with very marked icterus. There was cardiac steatosis, due, no doubt, to the excess in drinking which had produced the gastro-duodenitis.

On entrance she showed a very marked pallor of the skin, flabbiness of the muscles, great paleness of the mucous membranes, pronounced anæmia, coldness of the body, and especially of the extremities, small depressed pulse, general fatty degeneration. No organic alteration of the uterus, cervix thick and soft, no pain in the hypogastrium. The treatment of ice-bags, constantly applied, absolute rest and dorsal decubitus was continued. The appetite was almost gone, the patient taking only a little cold bouillon and iced drink.

April 17 and 18, the hæmorrhage remained the same. April 19, there was a ringing in the ears with vertigo, no nourishment. Revulsives and styptics were without effect, the hæmorrhage increased. April 20, the patient's pallor is alarming, has fainted for several minutes, has a constant tendency to faint, the slightest movement about the bed is disagreeable, a conversation carried on in a voice somewhat raised is excessively disagreeable. Pulse irregular 108, temperature reduced from 98.6 to 97.3 with oscillations. Auscultation gave a heart-sound like the mixture of air and liquid passing through the auricles and ventricles —a gurgling sound. The patient was completely exsanguine. The feet and hands were icy, the tongue, lips and conjunctivæ perfectly colorless. The pulse became less and less perceptible. A drop of blood under the microscope showed red glolules, not deformed but not disposed to group themselves in piles. The proportion as counted was one white to every twenty red corpuscles. April 21.—The foot of the bed had been raised to assist in preventing fainting, but the symptoms continued, one fainting fit lasting 10 minutes and the pulse being 116 and hardly perceptible. M. Poucelet, the interne of the service, offered himself to be used in the process of transfusion, the blood used was defibrinated and filtered, microscopically the red globules were normal, there being one white to four hundred red.

The first attempt at transfusion was practiced upon the leg, but failed because a vein could not be obtained large enough to admit the passage of the canula. The arm was then tried, and fortunately the right median basilic vein admitted the canula. In twenty minutes, proceeding slowly and gradually, 215 grammes (or 37 fl. ounces), of new blood had passed into the veins of the patient, and in an hour's time the operation was over and the wounds closed by carbolized dressings. There was no pain or discomfort expressed, as the blood penetrated the organism, and when about 25 grammes of blood had been injected, the pulse increased in force and amplitude, it still beat irregularly at 128. At the end of the operation the pulse was 116.

The operation was completed at 11:30 A. M., at 12:20 P. M. a rigor set in which lasted until 2 P. M. The patient shivered, her teeth chattered, there was constant subsultus of the muscles, there were dark rings about the eyes and as far as the cheek bones, the naso-labial fold was excessively deepened, and the nose, the lips and the chin were dark like the ring about the eyes. At times there were painful sensations of heat. Pulse very irregular. Respiration frequent and jerky, skin cold.

At 2 P. M. the rigor ceased. Temperature 102.°5. Pulse, 144. At 3 P. M. the patient asked for something to eat, which was given every two hours until 9 P. M. At 4 P. M., temperature 102°, at 6 P. M., 100°, with a pulse of 112. Through the night at three visits the temperature was 99.°5. The pulse became regular and the oppression in breathing ceased. The patient did not sleep, but she declared that she rested, as her head did not feel so empty. *The uterine hæmorrhage stopped entirely.*

April 22, A. M.—Pulse 108, temperature 99.°5. Takes considerable nourishment. Feels contractions in the lower part of the abdomen, like labor pains. Discharged 600 grammes of urine with a density of 1025, urea, 9, gr. 64, chlorides 3 gr. 90, phosphates 1, gr. 50. Slept well that night, perspiring freely.

April 23, A. M.—Temperature 99.°5, pulse 104, well nourished.

Microscopical examination of the blood showed a notable increase in red corpuscles, normal in form and nummular in arrangement, also a number of young hematies and the debris of destroyed red globules. The urine 325 grammes at 1026, contained urea 8 gr. 26, chlorides 2 gr. 58, and phosphates 0 gr. 67, was markedly green in color, and gave a carbolic acid reaction. The carbolized dressings were discontinued.

From this date (April 23) to April 26, the record is given fully, showing a progressive advance to convalescence. April 25, an enema was given, bringing away hard fœcal masses with much colicky pain. On April 26, the temperature was normal, pulse full but somewhat accelerated; 1320 grammes of urine, density 1023, urea 20.39, chlorides 19.14, phosphates 2.65.

The interesting points here are the immediate cessation of hæmorrhage after the transfusion of 100 grammes of blood, the marvelous rapidity with which a completely exsanguinated organism was relieved, and the perfect immunity of the operation itself.

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PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, AUGUST 16, 1884.

CHEESE—CAN IT BE RENDERED MORE SATISFACTORY AS AN ARTICLE OF DIET?—The *British Medical Journal* of June 14, in an editorial on "the dietetics of cheese," gives what seems to be a running abstract of a lecture by Mr. Matthew Williams, on the peculiarities of cheese as a food. The claim is made, consistent with general observation, that twenty pounds of cheese contains as much nitrogenous matter as sixty pounds of meat, and the reason assigned why it has not met with more general approbation is that it is not so easily digested. Then we are told that the reason why it is not easily digested is "because the salts of the milk were left in the whey when cheese was made with rennet. These, especially potash, were most necessary to assist digestion, and food which did not contain them should not be taken alone. Reasoning upon these two scientific truths, he had made a number of experiments as to various ways in which cheese might be made digestible. Casein itself was not indigestible, because it was taken with advantage by infants, and in milk there were two salts which were necessary to nutriment and easy digestion. His aim in the experiments he had performed, was to bring these constituents together, and see what nourishing and palatable foods could be made from them. By putting a sixth of an ounce of bicarbonate of potash with a pound of scraped cheese, and adding to them a small quantity of milk, he found them to dissolve and assume a liquid form. He used double Gloucester cheese in this instance, and the experiment was most successful. With American cheese it was not; and from this fact he was led to presume that double Gloucester cheese was made with rennet, as it ought to be, while the American cheese was not."

We do not intend to take up *seriatim* the various subjects referred to in the above extract. We have copied it in order that we may not do injustice to our contemporary. When we are told that the salts of the milk are left in the whey when the cheese is made with rennet we are led to infer that there is some other preferable way of making it without rennet, by which the desired salts are retained in the cheese. At the close of the extract we learn, however, as with the addition of the potash the double Gloucester dissolved, whilst the American cheese did not, the conclusion was that the "double Gloucester was made with rennet, as it should be, whilst the American cheese was not."

Now, as Americans we have been charged with a great many abuses; making wooden nutmegs, artificial eggs and the like, but it had never occurred to us that we were ever guilty of trying to find anything cheaper than rennet for the manufacture of cheese. We have nevertheless made some enquiries, and we find that the insinuation is as groundless as the reasoning is illogical.

We have to admit, however, that the charge made against the American factory cheese of insolubility is to some extent true, not, however, from the substitution of something else in the place of rennet as asserted, but by reason of a peculiarity in the mode of manufacturing. In American factories the milk to be made into cheese is always curdled with rennet. It is a peculiarity of the American factory system of cheese making that the curd is permitted to remain in the whey till the latter is distinctly sour. This greatly impairs the solubility and digestibility of the curd and cured cheese, by dissolving out more or less, according to the acidity, of the mineral matters of the curd, and carrying them off in the whey. But by far the greater part of the salts thus dissolved out consist of phosphates which are first converted into phosphoric acid, and lactates of the various bases, and then held in solution in the whey. The advantage which the manufacturer obtains from this procedure is a firm, solid cheese in a shorter time, and the disadvantage is felt by the consumer both in the inefficient assimilation, and in the development of dyspepsia and constipation with their associated evils, moral and physical. This, however, reacts with justice on the manufacturer, and diminishes the sale of an article that might otherwise be in much greater demand. Professor L. B. Arnold, of Rochester, N.Y., in his evidence before the Select Standing Committee

of the House of Commons at Ottawa, says: "It is rare indeed that any one can partake at all freely of such cheese (referring to the sour whey system), without soon suffering from its notorious tendency to constipation, and a general disturbance of the whole system. These effects are so uniform and frequent that people very naturally suspect they are the legitimate consequences of eating any cheese. This, however, is not so. It is only the effect of imperfect manufacture and curing. When properly made and cured, cheese is as healthy as other food, and can be as freely used by the average citizen, and even by invalids with impunity, and so far from having any constipating tendency, is rather a laxative." If these statements represent accurately the relation of the cheese question to the human economy, we trust that our hygienic workers will study the question for us who are consumers, and at the same time make the manufacturers realize that the common interest of both consumer and producer lies in the delivery of a readily digestible article. It is just as criminal to manufacture an article of common consumption carelessly, and thus injure the health of the community, as it is to adulterate an article with a baser product.

IMPORTANCE OF PURE WATER.—Chicago is supplied with water from Lake Michigan. It is taken two miles from shore and conducted to the city in tunnels. When unpolluted by sewerage the lake water is remarkably pure and pleasant. The sewerage of the city is, however, emptied into it through the Chicago river. In the spring, when the river is full, there is sufficient current to carry the sewerage far out into the lake, and when the wind blows from the south, the current is blown directly across the source of water supply. Except for a little time in the spring the river is so sluggish that the water would be motionless unless artificially moved. Some years ago it was found necessary to create an artificial current. In order to do this, two pumping works were established, one on each branch of the river. The river is somewhat Y shaped, the base of Y being the mouth, one branch running south and west and known as the south branch, the other north and west and known as the north branch. It divides the city into three divisions and forms for them an open sewer. Before the artificial current was created, the river during the summer months was a public nuisance. Now, so long as the current is maintained, the river remains salubrious. The pumps on the south branch transfer the water by way of the canal into the Illinois river. Those on the north branch empty it through a tunnel into the lake.

The pumps are made so that the water can be either pumped from the river into the lake or the lake water into the river. However, if a strong current is forced out of the river the water supply of the city becomes polluted. Therefore the south branch is emptied into the canal and the natural direction of the river current reversed. The water of the north branch is pumped into the lake and is now a source of pollution to our drinking water. The engineers say that the current can not be reversed while the south branch pumps are forcing the water out of the river into the canal without causing a stagnation of the water in the main river because of the contrary currents in the two branches.

On the south branch water is being pumped from the river at the rate of 60,000 cubic feet per minute. During the last year Professor J. H. Long, of the Chicago Medical College, has been making analyses of the hydrant and river water. He finds at State street bridge, which is about half a mile from the mouth of the river, seven parts of free ammonia per 100,000,000 of water, and sixty of albuminoid ammonia; at Polk street, about a mile further from the lake, on the south branch, seventy parts of free ammonia and fifty-two of albuminoid; at the pumping works two hundred and sixty parts per 100,000,000 of free ammonia, and one hundred of albuminoid. At the pumping works on the north branch there were two hundred and forty parts of free ammonia, and eighty-four of albuminoid. Professor Long says: "It is from this source that the lake receives its greatest contamination, for the pumps throw through the conduit into the lake of this vile stuff 16,000 cubic feet per minute. When the wind is favorable a dirty current can be seen floating from the outlet of the conduit toward the crib"[1] from which our drinking water is obtained. That this contaminates our water can be readily seen from the following figures. "During the week past daily tests show amounts of free ammonia ranging between two and eight parts per hundred million, and albuminoid between ten and sixteen parts per hundred million. The microscope reveals the presence of bacteria." Chemists usually consider three parts of free ammonia and five parts of albuminoid per hundred million of water as limits beyond which nitrogenous matter should not go. When the river is flooded in the spring after a general thaw, similar contamination is evident. Professor Long found a year ago in March, both free and albuminoid ammonia. "The amounts decreased from six to eight parts respectively per hundred million the 1st, to one and five per hundred million the 15th. However, in a few days the album-

[1] Chicago *Tribune*, August 3, 1884.

inoid ammonia increased again, and remained nearly double the above amount for a month. This year something similar was observed, and at both times the microscope showed not a few bacteria. The water tested was obtained from a hydrant in the laboratory of the Chicago Medical College on Twenty-sixth street."

If all our river water could be pumped away from the lake, it is evident that our hydrant water could be kept pure. This can only be accomplished, however, by keeping the pumps in action all the year round, and by ceasing to empty the north branch into the lake. The question then arises, how can the water of this portion of the river be disposed of? Perhaps the most economical and best way would be to irrigate the land near the present conduit. Immediately north of it are many of the truck gardens that supply the city with vegetables. It has been found abroad that this is both the most economical and most healthful way of disposing of sewerage water. The method of purification by land irrigation has, however, been but little tried in this country. Pullman, a suburb of this city, furnishes a good illustration of this system. The hydrant water should, however, at all hazards be kept uncontaminated.

PNEUMOTOMY.—With a view to ascertaining what conditions justify this operation, it may be well to recall some of the cases reported of late, although almost every medical journal of the past few weeks has mentioned them, and the particulars may be fresh in the minds of our readers. It is superfluous to repeat any portion of Professor Fenger's paper which appeared in this JOURNAL of the 19th ult., since its facts are accessible, if not well remembered. At the time of its presentation before the State Medical Society, Dr. Fenger's was the second successful case to date. But, at a May meeting of the Royal Medical and Chirurgical Society of London, Dr. Cayley and Mr. Pearce Gould detailed a case of acute circumscribed gangrene of the lung in a girl of twelve years in which the latter gentleman operated the 16th of last February, with recovery. Although not reported until after Dr. Fenger's, it antedated it by two months. Both surgeons were ignorant of the other's proceeding and employed different methods of operating. Mr. Gould punctured with a large trocar and canula, and inserted the drainage-tube through the latter. The result of both operations was the same, and justifies the procedure in this class of cases. At the same meeting reports were made of this treatment in pulmonary cavities; some, that proved to be bronchiectatic, and some, tubercular. In all marked amelioration of symptoms followed, but no recoveries.

In the *Lancet* of July 5, Mr. Teale, of Leeds, published an instructive case of "Abscess of Lung Cured by Incision and Drainage." This was in March, 1881. The convalescence dragged along for months, but recovery was so complete that when seen last June, the patient was "not conscious of being in other than the most perfect health, is actively at work in his profession every day, and has no discomfort or shortness of breathing during ordinary exertion."

The opening into and drainage of pulmonary abscess would therefore appear to be justified in certain cases.

It only remains to consider the propriety of paracentesis and drainage of pulmonary cavities, and the method to be employed.

It is unfortunate we have not access to the full text of Dr. Biss's paper, since it discussed the drainage of "Pus-Secreting Basic Cavities of Lung," and gave his reasons for dividing them into three classes:

"(1) Those in which paracentesis is imperatively called for; (2) those in which it is unjustifiable; (3) those in which it is a question of special difficulty whether it should be performed or not." The first class would include cases, we think, in which surgical aid is demanded by the gravity of the constitutional symptoms, due to profuse secretion of pus which is ineffectually expectorated and is contaminating the system by its absorption. It also presupposes the demonstration and exact location of a cavity.

The reverse of these conditions would constitute the second, while in the third, many considerations might make the question of operation difficult: The existence and location of a cavity might be doubtful, its size and the amount of expectoration, insignificant, though attended with profound general disturbance; the patient's previous history, bad; or bacilli might be found in the sputum, rendering the chance of ultimate recovery slight, etc., etc. In certain instances the mere amelioration of symptoms and prolongation of life might recommend the treatment. If the surgeon thought there was reasonable prospect of cure by granulation of the walls and a cessation of the unhealthy secretions, or still better of the obliteration of the cavity, as sometimes occurs in spontaneous recovery of circumscribed pulmonary gangrene, no one could well question the propriety of his opening it up and draining off its contents.

Although death occurred in Dr. Biss's case, he did not consider it caused, though hastened by the operation, (since, "the symptoms were considerably, but not wholly relieved,") but by cerebral abscess.

Let us now consider cavities of tuberculous origin. In the cases cited the introduction of the drainage tube was attended with evident abatement of the cough and expectoration, as might be looked for; the fever was also lessened, the appetite improved and strength was gained. None of the patients remained under observation long after the operation, but of course a cure was out of the question. It is improbable that tuberculous walls would heal, and if they should do so, would the progress of the constitutional affection be stayed? It would be curing a manifestation, not the disease itself. Gangrene and abscess are local diseases, and as such benefited by the operation. The drainage of tubercular *vomicæ* is but palliative, yet the surgeon must decide if the gain would warrant his interference.

The shock of pneumotomy does not appear to be very severe. At least the patients seem to have rallied from it without great difficulty.

Irrigation in addition to drainage is desirable, if it does not cause too distressing cough. However, in this regard each case appears to be a law unto itself.

Adhesion of the *pleuræ* at the point of puncture is a desirable, though not an essential condition, to the success of the operation. The existence of adhesions is often impossible of previous determination. Yet this fact should not deter the operation, since no evil results have followed where adhesions did not exist.

Fenger exsects a portion of rib, and leaving *in situ* as a director the needle of the hypodermic syringe, used in exploring, cuts along this with the galvano-cautery. The English Surgeons appear to prefer to puncture with a large trocar and canula. This seems objectionable for two reasons:

(1) There is greater danger of hæmorrhage.

(2) It is not always easy to penetrate the cavity at the first thrust, and it would be bad to repeat it with so large a trocar as is recommended.

Those among us who are conservative in their endorsement of this operation, except in gangrene and abscess, are not without reason. The method is new, and further experience may develop objections now overlooked in the ardor of enthusiasm. Time tempers enthusiasm and modifies the judgment.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The Twelfth Annual Meeting of this important organization is to be held on Tuesday, Wednesday, Thursday and Friday, October 14–17, 1884, at St. Louis, Mo. The officers and executive committee are actively engaged in making all needed arrangements for a large and useful session of the Association. Special committees composed of active and eminent sanitarians are expected to report on the Management of Epidemics; on Vital Statistics; on Compulsory Vaccination; on School Hygiene; on Cattle Disease; and on Necrology. There will also be papers and discussions on many other subjects. We trust there will be a large attendance and a profitable meeting. The present active officers are: President, Dr. Albert L. Gihon, U. S. N., Washington, D. C.; Secretary, Dr. Irving A. Watson, Concord, N. H.; Treasurer, Dr. J. Berrien Lindsley, Nashville, Tenn.

PACIFIC MEDICAL AND SURGICAL JOURNAL.—We have received a circular announcing that the *Western Lancet*, of San Francisco, heretofore edited and published by Dr. Whitwell, has been united with its senior contemporary, the *Pacific Medical and Surgical Journal*.

The united journal is to be under the editorial charge of Dr. Gibbons, Sr., and Dr. Whitwell. The former is one of the pioneers of the profession on the Pacific coast, and has ably edited the *Pacific Journal* for more than twenty years. The latter has also given evidence of commendable industry and editorial ability. The new arrangement gives assurance that the profession on the Pacific coast will have one journal worthy of their cordial support, instead of two with a divided patronage insufficient for either.

EARTHQUAKE.—A very decided shock of an earthquake was felt throughout the greater part of the Eastern and Middle States of our country on Sunday, August 10, at 2:10 P. M. In New York City, the motion of the buildings was sufficient to cause the inmates to rush into the streets in great fright. The motion, accompanied by a rumbling sound, continued from two to five seconds. It was felt from Boston to the western part of Pennsylvania, and south as far as Baltimore and Washington. No serious damage was done to buildings anywhere.

CHOLERA.—The epidemic cholera continues to spread slowly in the south of France. It is moderately prevalent in the Provinces of Turin and Genoa, and in several towns in other parts of Italy. A dispatch from London Aug. 11, says that cholera is prevailing at Maufragne near Valence, and at Bezirs, with much violence.

YELLOW FEVER.—On the 11th inst. the British ship Deerfield, from Havana, was anchored off the mouth of the Mississippi river below New Orleans with yellow fever on board. The captain was warned not to enter the river, but to take his vessel and cargo to Ship-Island for sanitation.

DR. ERASMUS WILSON, OF LONDON.—The death of this eminent physician and author was announced in the secular papers of the 10th inst.

SOCIETY PROCEEDINGS.

MASSACHUSETTS MEDICAL SOCIETY.—PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—ADJOURNED SPECIAL MEETING.

Section for Clinical Medicine, Pathology, and Hygiene.

ALBERT N. BLODGETT, M.D., SECRETARY.

(*Continued.*)

Mr. Desmond FitzGerald, C. E., said that the improved system of sewerage for the city of Boston was so designed that if it should ever be found desirable to utilize the sewerage, it could be done, but that in the present experience of dealing with as large a quantity of refuse water as that now supplied by Boston, and considering its highly diluted state, it would be a great waste of money to attempt any scheme of utilization. In regard to inland towns situated on the borders of water-sheds used for sources of water supply, the case was, however, far different. Here very small amounts of sewage had to be dealt with, and there was little doubt in his mind that some scheme either of filtration or irrigation could be successfully applied. The speaker did not intend to use the word success in a pecuniary, but in a sanitary sense.

Mr. FitzGerald proceeded to describe the actual condition at the present time of the several sources of supply of the city of Boston, and of his attempts to preserve the purity of the same. He showed that the time had now arrived when some principle of action must be assumed. Either the brooks must be given up to the the towns for common sewers or the towns must be made to take care of their sewerage in a proper manner.

The speaker went on to show that the brooks are now used for drainage only by those people who happened to own land on the margins, while the neighbors immediately adjoining have to provide for their sewage by emptying their cesspools, etc., and the hardship and injustice of this is not denied. Mr. FitzGerald described the works at Sherborne, which are sub-surface irrigation combined with intermittent downward filtration. He said the works had been very much misrepresented, and that while no filtration system removed the chlorine, yet the effluent water was clear and inoffensive to the eye or smell, and practically the filthy condition of the sewage is very materially improved. The speaker agreed with the statements made by Mr. Ernest W. Bowditch at the last meeting, that no cast-iron rule could be made to suit all cases, but that as the circumstances and situation of every town were different, so a study would have to be made of each case and that system adopted which best suited its peculiarities.

Dr. John G. Blake remarked that, looking at the subject from the health stand-point alone, it was becoming every day more necessary that some solution of the sewage question must be attempted if the health of communities as affected by their water supply was to be considered. What is wanted to hasten the solution of the subject is a law compelling towns bordering on rivers, ponds, and lakes to make some other disposition of their drainage than to allow it to run into these as receptacles. Up to the present time it has been impossible to convict offenders, but during the past winter a law, more stringent in character and free from the defects in previously existing laws, was passed, and under it, action to punish offenders will soon be commenced and pushed vigorously. From what had been said on the subject Dr. Blake is inclined to think that irrigation might prove itself very well adapted for small country communities without any regular system of drainage. The question of profit might well be left for later discussion, and the only point deserving consideration was the disposal of their sewage at the least expense and in such manner as to prevent its becoming a source of injury to themselves and others. Inasmuch as eighty cities and towns are moving to supply themselves with water, the importance of this subject had become very much magnified, and action looking to a remedy must soon be taken.

Dr. Barnes, in closing, said: If the theories advanced in opposition to the employment of irrigation and agriculture for the epuration of sewerage had not been used in Europe, and finally overcome by actual experience, one would hardly feel like continuing to advocate this system for Massachusetts. My enthusiasm, however, does not carry me so far as to suggest even a possibility of the abandonment of Boston's system of intercepting sewerage, notwithstanding the probability of its polluting the lower harbor and producing an unsanitary condition similar to that of the upper harbor, and annoyance to the people living on the south shore, for before this condition is reached it may fairly be anticipated that irrigation and agriculture will have proved here, as in Europe, an economical and practical method of epuration. The sewer can then be extended to the main land and discharged on the soil. "It will not be possible, however, to connect any territory adjacent to Boston with this system without constructing an additional tunnel under Dorchester Bay." This is the language of one of Boston's officials a few weeks since before a committee of the Legislature. Filtration has in numerous instances in Europe, accomplished a complete clarification of sewage, and yet the analyses show the effluent water to contain from one-half to six-sevenths of the original amount of polluting matter. Col. Waring's system of filtration at the Women's Prison accomplishes all that is possible, and yet the analyses show the result to be far from satisfactory. Pasteur and Shloesing, with others, sign a report to the Parisian government in which is stated, "the system of epuration by soil is the only one yet demonstrated to be a success. The discharge should be intermittent, and with methodical rotation, and the doses should be determined by analyses of the effluent water."

At Dantzic is encountered a mean winter temperature about that of our own. Irrigation is continued throughout the year with quite as much success in epuration in winter as in summer, and at all times without offense.

The "winter basins" at Breslau are not a part of the system advocated, as they involve the stagnation of sewage.

"The rosy coloring" of the Gennevilliers farms was not my own painting, but the translation of a report by a commission appointed by the city government of Paris, to whom, it seems to me, ought to be accorded the credit of knowing the facts, particularly as the report was unanimously signed. These gentlemen say "the increase in valuation and population at Gennevilliers is due to farmers coming from other parts of France to share in the general prosperity." Durand-Claye says "the population of Gennevilliers has increased thirty-four per cent. in five years by the arrival of numerous cultivators." M. Joly says of the Gennevilliers farms: "The question, scientific and practical, is absolutely solved." And Dr. Loiseau, at the Geneva Congress, in 1862, said "the benefits derived from these farms are indisputable from every point of view."

I was amazed at the statement that no person knew the cost of the Gennevilliers farms, as I have in my library an official document of Paris pretending to give every item of expense from the first experiment at Clichy, in 1866 and 1868, down to 1881, including lawsuits and large indemnities paid for an unfortunate experiment.

In regard to the city of Pullman making arrangements to pump the sewage into the lake I have the following letter from the superintendent of the farm:—

RIVERDALE, COOK COUNTY, ILL., *May 9, 1884.*

DEAR SIR.—If any such arrangements as you speak of in yours of 6th inst. are being made, I have no knowledge of the fact. The sewage is thoroughly purified by filtration, creating neither offensive odor nor nuisance of any kind.

The farm, last year, paid over six per cent. profit on the money invested ($80.000), and we hope this year to do even better. Consequently there exists no necessity for any such change as you speak of.

Very respectfully, E. T. MARTIN, *Superintendent.*

HENRY J. BARNES, M.D., BOSTON, MASS.

It should be mentioned here that downward intermittent filtration is a valuable auxiliary to sewage farming. I. Bailey Denton has written considerable upon this branch of the subject. I regret not knowing the history of the Pullman farm, as I should like to pay a proper tribute to the pioneer of this system in America.

The unprofitable results of sewage farming have been dwelt on by most of the opponents of the system, forgetting that it is a question of sanitation and not of making money; and if raising vegetables contributes in any degree to lessening expenses, it takes precedence, in a financial point of view, of all others, as they make no return for the original outlay, except the almost universal offense they create.[1]

It has been a long and costly struggle to demonstrate the fact that sewage can be epurated by irrigation and agriculture. Every conceivable danger has been predicted. And many are the unfortunate and disastrous experiments which can be cited as swelling the cost above the possibility of many of the farms earning interest on the plant. To obtain an act of Parliament authorizing the establishment of a sewage farm, often requires the expenditure of £10,000. Litigation and land damages, another large amount, for land is very dear in England. The heavy clay soil demands a large expenditure for drainage. But notwithstanding these obstacles the number of farms has rapidly increased, until now there are at least two hundred.

The Royal Commissions recommend the enactment of a general law authorizing farms of this character.

In 1876 Messrs. Chesbrough, Lane, and Dr. Folsom, Commissioners, reporting on the sewerage of Boston, say "the Edinburgh farms are profitable." One of the commissions appointed by the Parisian government declares the sewage farms at Gennevilliers profitable, and uses this as one of the arguments in support of their recommendation to the city to purchase the State lands in the forest of St. Germain. The owner of the farm at Leamington (which, by the way, has not been leveled), as well as the superintendent of the farm, claim a good profit after paying the city $2.250 per year for delivering 1,000,000 gallons each day at the highest point of the farm.

Mr. Aird could not have lost a large amount of money in his contract to take the sewage of Dantzic, for some years later he made a similar contract with the city of Breslau. But it ought not to be required of the friends of this system to show profit until at least one system is devised capable of competition with this in producing satisfactory epuration.

(*To be continued.*)

[1] It would hardly seem necessary to affirm before a scientific body of men that clarification is not purification, or that no system of epuration of sewage is satisfactory, which, by analysis, shows quite as much pollution in the effluent as in the influent water. (See analysis of the sewage of the Women's Prison.) As to the average rain-fall of Great Britain, the figures quoted were obtained in the office of the United States Signal Service, and from Professor Niles. But as it is more a question of average humidity which determines the evaporating power, a few inches more or less of rain-fall per year is of little consequence.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

LONDON, July, 1884.

Dr. Morell Mackenzie, of throat celebrity, has published a pamphlet on the subject of hay fever. The information is exhaustive. Hay fever, it seems, like influenza and cholera, did not occur in Europe in ancient times. Bostock, in 1819, first described it; Elliotson did so in 1831, and after him Phœbus, of Giessen. Helmholtz gave his views in 1869, and he was followed by many others. Dr. Morell Mackenzie considers the pollen of certain grasses to be the exciting cause. Dr. Mackenzie differs from the great Helmholtz in the importance which he assigns to quinine. He recommends with the utmost confidence, valerinate of zinc in combination with assafœtida in pills of one grain of valerinate of zinc and two grains of compound assafœtida pill, doubling the dose at the end of ten days or a fortnight. He also alludes to tincture of benzoin in hay asthma, and recommends an inhalation of benzoin, together with an in-

sufflation for nose of powdered $^1/_{16}$ of a grain of morphia and one grain of bismuth.

News has just been received of the death of Dr. Hunter, of missionary fame. He was the first medical missionary to China of the Irish Presbyterian Church. He died on board steamer returning home. Death resulted from consumption.

Another new and important application of salicylic acid has come to light in the medical world. Dr. Ogilvie, of the Aberdeen Royal Infirmary, having lately had a patient present himself suffering from a peculiar affection of the dorsum of the left foot. The whole of the anterior half of the foot was brown, rough and warty-looking, in fact, not unlike the hide of a hippopotamus. On attempting to detach a small portion, bleeding followed. The disease had existed for two months, and was spreading. Having procured some of Beiersdorf's salicylic plaster, to which Dr. Thin directed special attention at a late meeting of the London Clinical Society as used by Dr. Unna, of Hamburg, in the treatment of cases of thickened epithelium, a certain quantity of the plaster being cut into strips, the affected part of the foot was accurately strapped with it. The dressing was left untouched for three weeks, and on removing it the warty layer came off with the plaster, and a fine, soft, healthy skin was found covering the parts previously diseased. At some points the skin was covered with a thick layer of white, softened epithelial matter, resulting from the peculiar solvent effect exerted by salicylic acid on the epidermic tissues. One or two small warty portions about the roots of the toes had not been covered with the plaster. An attempt to scrape off this warty tissue, first by means of the finger nail, and then by a blunt lancet, was attended by bleeding. To these parts fresh strips of salicylic plaster were applied, and when in ten days they were removed, the skin underneath presented a normal appearance. The results so far have been so satisfactory that Dr. Ogilvie is going to give this novel mode of treatment an extended and careful trial, as there appears to be a wide field of useful application for so simple and efficacious a method for the removal of morbid conditions of the skin. In due course the profession may expect some interesting details of the cases in which the new plaster is employed.

A case has been reported in which a papilloma situated on the sole of the foot was cured by applying to the tumor a Chanteand granule of salicylic acid by means of a few strips of plaster. The perspiration of the foot dissolved the granule. After this method had been carried out some 20 times the foot was well.

The fourth Masonic lodge founded on the principles of total abstinence, has just been consecrated in London, Dr. W. B. Richardson being Worshipful Master. Amongst the officers are Dr. Beauthwaite, Dr. Quintin Hogg and Dr. N. Kerr. In response to the toast of his health, the well-known sanitary reformer said that if the great principles of Freemasonry were to be carried out to their fullest extent, universal peace, permanent progress, and the brotherhood of humanity, it must be by the adoption of the principles they professed.

The Home Hospital Association have subscribed an additional £10,000 for the purpose of acquiring the adjoining premises of their Fitzroy Hospital, Fitzroy Square, and erecting there and furnishing buildings which will double the accommodation of that flourishing institution. The Home Hospital movement originated in a letter written to the "*Standard*," by M. H. C. Burdett, on April 4, 1877, in which he advocated the formation of an association for the purpose of founding hospitals and convalescent institutions, which should be replete with every possible comfort and provision for the privacy and proper treatment of well-to-do patients, and to which admission should be by payment alone. In consequence of the publicity thus obtained, articles in support of the movement were published in the medical and other newspapers. The Association provides hospital treatment, skilled nursing, and other accommodation, for the benefit of all classes who can afford to pay for such advantages when attacked by illness.

The city Commissioners of Sewers, by the courtesy of Sir Henry Thompson, Sir Spencer Wells, and other members of the Cremation Society of England, have made a visit to the Society's Crematorium at Woking and observed the cremation of a horse. The committee thought it was inexpedient to erect any apparatus for the cremation of the dead, until that mode of disposal has been regulated by Parliament. The bill which was introduced into the House of Commons, with a view to regulate the proceedings in cremation of the dead, has for the present been rejected by a small majority.

At a conference held at the International Health Exhibition, Dr. W. H. Horfield read a paper on "How Infectious Diseases are Caught." He thought the atmosphere was the most universal medium of communication, though some poisons were more readily conveyed in this manner than others. Poisons of several diseases might be conveyed by means of clothing, and laundries were often the agencies of dissemination. An instance was given where chicken-pox had been communicated by means of letters. Drinking water was a most important vehicle for the conveyance of enteric fever, with cholera and dysentery in hot climates, and diphtheria might be spread in this way. Some cases were also given where flies must have conveyed the poison of infectious diseases.

Prince Ferdinand, of Bavaria, brother-in-law to the Duke of Genoa, having published a work with the title "The Anatomy of the Tongue and Studies in Comparative Anatomy," has just received from the University of Munich the honorary degree of Doctor of Medicine.

Geologists of eminence report that within a short time of the shock of earthquake, which in the spring devastated a part of the county of Essex, the level of the water in the wells rose five feet above the highest level ever known. On the Sunday after the shock the water had risen to eight feet, and it has since remained at a rise of seven feet.

G. O. M.

NECROLOGY.

FREEMAN, WILLIAM, M.D., the subject of this notice, was born near Lockport, in the State of New York, in 1809, where he received his literary and professional education, and graduated in the Geneva Medical College in 1834. After graduating, he practiced with his preceptor for four years, and then came to the West and located in Hamilton, Butler Co., Ohio. Here he was married, and practiced his profession until 1847. He then removed to Camden, Jay Co., Indiana, where he continued in active practice until the day of his death, April 17, 1883, being 75 years old lacking 11 days.

Dr. Freeman served three years in the army during the late war, one as Assistant-Surgeon of the 53d Ind. Vol. Inf., and two years as Surgeon of the 7th Ind. Cavalry, under Gen. J. P. C. Shanks. He became a member of the Grant County Medical Society on the 8th of June, 1850, many years before there was any society organized in his own county. He was one of the organizing members of the 11th Congressional District Medical Society, which passed appropriate resolutions of respect for his memory, an active member of the Indiana State Medical Society, and at the time of his death President of his own county society.

Dr. Freeman was a diligent student and an active, energetic practitioner. By keeping up with the advancing improvements of the day, he always maintained a prominent position in his profession.

He was intolerant of sham devices and false pretenses as substitutes for the merit of real knowledge and scientific attainment in the profession.

In his death the profession lost an earnest member, who was ever ready to give his aid and influence to any measures calculated to promote the usefulness of his calling, and the community the services of a true man and an honorable physician.

His death was caused by an encysted tumor of the brain. It was sudden and unlooked for at the time. He had occasionally suffered from vertigo and cerebral symptoms for some 18 months prior to the fatal termination, but was able to attend to the duties of his profession up to the day of his death. Material for this notice was furnished by a son of the deceased, B. R. Freeman, M.D. L.

MISCELLANEOUS.

MEMORIAL TO THE LATE DR. AMBLER, U. S. NAVY.

The officers of the Medical Corps of the United States Navy some months ago determined to erect an appropriate memorial to their late associate, Dr. Ambler, and after a conference of views it was decided to commemorate him by a granite monument on the lawn in front of the U. S. Naval Hospital at Norfolk, Virginia, and a bronze tablet to be placed in Leeds church, near his home, at Amblerville, Fauquier county, Va., where he has been buried.

The committee to whom this work was intrusted, and of which Dr. Edward Shippen, of the U. S. Naval Hospital at Philadelphia, is chairman, have just completed this tablet, which will soon be placed in the church. It bears the following inscription:

JAMES MARKHAM AMBLER,

PASSED ASSISTANT SURGEON UNITED STATES NAVY.

Died on the banks of the Lena River during the memorable retreat of the ship's company of the U. S. Arctic steamer Jeannette, in the year

1881.

His sense of duty was stronger than his love of life.

In memory of his noble example and heroic death this Tablet is erected by the Medical Officers of the United States Navy.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership. RICHARD J. DUNGLISON, M.D.,

Treasurer.

Lock Box 1274, Philadelphia, Pa.

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING AUGUST 9, 1884.

Assistant Surgeon J. S. Sayre, ordered to U. S. S. "Independence."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM AUGUST 2, 1884, TO AUGUST 8, 1884.

Woodward, Jos. J., Major and Surgeon, sick leave of absence extended six months. (Par. 9, S. O. 178, A. G. O., July 31, 1884.)

Gibson, J. R., Major and Surgeon, granted leave of absence for 1 month and 16 days. (S. O. 36, Hdqrs. Div. of the Atlantic, August 4. 1884.)

Heizmann, C. L., Captain and Assistant Surgeon, relieved from duty at Columbus Bks., Ohio, and ordered for duty in Dept. of the East. (Par. 2, S. O. 186, A. G. O., August 2, 1884.)

McCreery, Geo., 1st Lieutenant and Assistant Surgeon, leave of absence extended two months. (Par. 4, S. O. 180, A. G. O., August 2, 1884.)

Taylor, A. W., 1st Lieutenant and Assistant Surgeon, ordered for temporary duty at Fort Riley, Kans. (Par. 1, S. O., 153, Hdqrs. Dept. of the Mo., July 29, 1884.)

Hopkins, W. E., 1st Lieutenant and Assistant Surgeon, granted 1 month leave of absence, with permission to apply for 1 month's extension. (Par. 1, S. O. 67., Hdqrs. D. of Arizona, August 1, 1884.)

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ORIGINAL ARTICLES.

ON BRANCHIAL CYSTS OF THE NECK.

BY N. SENN, M.D., MILWAUKEE, WIS.

Read in the Section on Surgery and Anatomy of the American Medical Association, May, 1884.

The differential diagnosis and operative treatment of tumors of the neck, are subjects which belong to the most imperfect and unsatisfactory topics in surgery. The great difficulties which are often encountered in the diagnosis of cervical tumors, and the importance of the anatomical structures which are involved in all operative procedures for their removal, are well known and appreciated by all who can speak from personal experience. One of the most important, and, at the same time, one of the darkest chapters treating of tumors in this region, relates to cystic tumors, and more particularly that variety which originates from congenital defects of development, the matrix being composed of fœtal epiblastic or hypoblastic tissue, which remains in its embryonal state for an indefinite time, and later, by proliferation of its epithelial elements, gives rise to a distinct and characteristic type of cystic tumors. These tumors have been variously designated as branchial cysts (Roser), dermoid cysts of the sheath of the internal jugular vein (Langenbeck), deep-seated atheromatous tumors (Schede), tumors of the branchial clefts (Virchow), hydrocele colli congenita (Mannoir), hygroma colli (Luschka), atheromatous cysts of lymphatic glands (Luecke), in accordance with the nature of the contents of the tumor, or the peculiar etiological views entertained by different authors. It appears to me, however, that "branchial cysts" is the most appropriate term, as it expresses at once both the location and the character of the tumor.

EMBRYOLOGICAL AND ANATOMICAL REMARKS.

Toward the end of the first month of fœtal life, we see under the frontal process, open in front and bounded on the sides by four plates, the pharyngeal cavity. The upper pair of plates constitute the first branchial arch. The next three pairs of plates make up the second, third, and fourth branchial arches, which decrease in size from above downward, so that their median interspaces in front are narrow above and wider lower down. Between each pair of branchial arches on each side remains a transverse cleft, the branchial clefts, which unite during early fœtal life, with the exception of the first one, from which the external auditory canal, the cavity of the tympanum (middle ear) and the Eustachian tube are developed. The neck is thus built up of continuous lateral walls. From the second branchial arch are developed the styloid process, the stylo-hyoid ligament, the lesser cornua of the hyoid bone; the third arch forms the large horns and the body of this bone; the fourth arch assists in forming the soft tissues of the neck. The larynx, trachea, and adjacent glands are developed from other centres of fœtal growth. The primary origin of these tumors necessarily must correspond to the location of one of these branchial clefts, and clinical experience has demonstrated that they are most frequently found in the region of the second and third branchial clefts, in the vicinity of the larynx, pharynx, and in intimate relation with the sheath of the large vessels of the neck, in contradistinction to dermoid cysts about the orbits and in the scalp, which are more superficially located (Langenbeck). In the case of a young lady, Langenbeck observed a cyst situated on the left side of the epiglottis and pharynx, which occupied one-half of the floor of the mouth, and which projected from underneath the chin on that side in the shape of a smooth tumor of the size of a fist. Respiration, deglutition, and motion of the tongue were greatly impeded. The cyst contained eight ounces of atheromatous matter. The same author states that he has frequently found these tumors attached to the greater horn of the hyoid bone or to the thyro-hyoid ligaments, localities which plainly indicate that they originated from remnants of former branchial clefts.

We shall have frequent occasion to allude to the intimate connection of these tumors with the sheath of the large vessels of the neck, consequently it is very important to study their anatomical relations to these important structures. The jugular vein is surrounded throughout its whole course in the neck by a distinct and separate sheath of areolar tissue, which, on the outer side of the artery, penetrates into the deep tissues of the neck, thus completely separating the two vessels. The jugular, enclosed in its sheath, may be easily drawn over the artery toward the median line without producing any change of location of the artery. The vein being in front of the artery, and covering half of the lumen of the latter, it can be readily understood that when the vein is drawn forward with its sheath, it can be injured while the artery is not exposed to the same danger. Branchial cysts of the second and third clefts are always ob-

served in the sheath of the large cervical vessels, usually in the carotid triangle above the omo-hyoid muscle. They appear to occur more frequently on the left side of the neck. Their shape is invariably round or oval, with a smooth surface. The contents of these cysts being either fluid or semi-fluid, fluctuation can be felt, more particularly if the tumor is palpated between two fingers from the pharynx or the floor of the mouth and the external surface. Only lateral motion of the tumor is possible, on account of its peculiar attachments to the deep tissues of the neck. If the tumor is only of moderate size, the pulsations of the carotid artery can be felt on its inner margin. If it is large, it overlaps the artery, when the pulsations of the vessel are communicated to the tumor. Smaller tumors can be made to pulsate, by bending the head backward and in a direction opposite to the tumor.

HISTORICAL NOTES.

Nearly forty years ago Roser of Marburg made the statement that many of the so-called ranulas about the base of the tongue, the mucoid and dermoid cysts of the upper cervical region, are due to imperfect closure of one of the branchial tracts. All of these tumors he included in one group under the name of branchial cysts. He described three distinct conditions which may result from entire absence or imperfect obliteration of any one of the branchial clefts.

1. Branchial fistula in case the entire tract remains patent.

2. Cystic fistula in case only one extremity of the cleft is obliterated while the other communicates with the pharynx or the cutaneous surface.

3. Branchial cysts in the event the tract is closed at both ends while between them it remains open, and by proliferation from the inner surface produces an accumulation—the contents of the cyst.

Although these tumors are by no means common, a sufficient number of well authenticated cases have been placed on record which remove all doubt as to the etiological relations which exist between imperfectly obliterated branchial clefts, the serous, dermoid, and the so-called deep-seated atheromatous tumors, of congenital origin and located in the regions formed by the branchial clefts. These tumors have since been made a special object of study by B. von Langenbeck, Luecke, Gurlt, Virchow, Schede, Esmarch and Heusinger.

CLASSIFICATION OF BRANCHIAL CYSTS.

Branchial cysts should be classified according to their contents. The cyst walls being lined with epithelium, the only histological element in the contents are epithelia. In most instances the epithelia lining the cysts belong to the tesselated variety, but Rehn discovered in a blind congenital fistula ending near the mucous membrane of the pharynx, ciliateed pithelium; and Neumann found cylindrical and pavement epithelium in two cystic tumors of the neck, one of which was congenital, while the other was developed in later years. The presence of ciliated epithelium may be explained by assuming its origin to have been in the upper part of the cleft, the fornix pharyngis, where these fistulæ oftentimes end, and where ciliated epithelium normally exists. The lower end was probably lined with flat epithelium.[1] The physical and chemical properties of the cyst contents will depend largely on the amount and degree of retrograde transformation of the epithelial proliferation. In making the character of the cyst contents a basis for classification it is, however, important to remember that like in ordinary retention cysts, the contents of a branchial cyst are liable to undergo changes depending on the retrograde changes of the epithelial product, hæmorrhage and other transudations into the sac, or the occurrence of inflammation in the cyst wall itself. It is only during the earliest stage that the specific secretion is found in its purity. In the course of time the original character of the contents of the cyst may be completely lost by retrograde metamorphosis, or the addition of new material. Clinical experience and pathological examinations have shown that these tumors, according to the physical properties of their contents, may be divided into the following four principal varieties:

1. Mucous cysts; 2. Atheromatous cysts; 3. Serous cysts; 4. Hæmato-cysts.

Variable as the contents of these different varieties may be, more uniformity is observed in the structure of the cyst wall. In the primary stage of the affection it consists of a connective tissue capsule with an epithelial lining on its inner surface, and a delicate layer of a loosely connected reticulum of connective tissue (pericystium) which is very vascular and covers the outer surface of the cyst. A high degree of intracystic pressure may cause atrophy of the epithelial lining and thinning of the walls of the sac and, on the other hand, inflammatory proliferation produces great thickening of the cyst walls. While dermoid cysts contain the characteristic secretions of the skin and its appendages, the branchial cysts only contain the products of the epithelial cells because their walls do not contain any hair follicles, sebaceous or sweat glands, as the branchial clefts close before these appendages are formed.

1. *Mucous branchial cysts.* As a primary formation this form of branchial cyst is usually found in the upper branchial clefts. Their origin is attributable to an imperfect closure of the upper portion of the branchial tract, consequently the cyst wall may derive its lining from the mucous membrane of the pharynx, and the retention of the physiological secretion produces a mucous cyst. Many of the so-called ranular cysts about the base of the tongue belong to this variety of tumors. Among the six types of branchial cysts mentioned by Roser, the third variety consists of a cystic formation which extends from under the tongue towards the neck; the sac assumes an hour-glass shape, the constricted portion connecting the cervical with the lingual portion of the cyst. By making alternate pressure over the cyst, the contents may be squeezed from one portion of the cyst into the other. Congenital mucous cysts in the region of the base of the tongue and sides of the larynx in the majority of cases are due to an imperfect closure of the upper portion of one of the branchial tracts.

[1] Kœnig, Lehrbuch der spec. Chirurgie. Berlin, 1878. Vol. i, p. 454.

2. *Atheromatous branchial cysts.* This form of branchial cysts has been described by some authors as deep-seated atheromatous cysts of the neck (Schede), and dermoid cysts of the sheath of the large vessels of the neck (Langenbeck). They are usually located in the second and third branchial tracts in the region of the hyoid bone, and intimately connected with the sheath of the large cervical vessels. These cysts contain an atheromatous material resembling the contents of an ordinary retention cyst of the skin, with this difference, however, that they never contain anything which would indicate the presence of hair follicles, as lanuginose hair or sebaceous material, or any of the more complicated products of dermoid cysts. Schede[1] has made a careful microscopical examination of the sac of a deep-seated atheromatous branchial cyst. The specimen was hardened in Müller's fluid. The inner surface of the sac was lined with layers of tesselated epithelium. The deeper layers were composed of oval or spindle-shaped cells with delicate filiform processes which were arranged in a perpendicular direction to the walls of the cyst. The nuclei were either longitudinal and granular or round, completely filling the centres of the cells. If any attempts were made to tear the epithelia from their points of attachment it was observed that the different layers were arranged in such manner as to appear dovetailed. The superficial layers showed large polygonal cells with distinct nuclei. The portion of the capsule next to the epithelia, consisted of thick concentric layers of thin fibrillated areolar tissue. Occasionally the fibrils were wanting, their space being occupied by a pale homogeneous mass of a granular substance. Outside of this structure the capsule was composed of strong bundles of connective tissue which were arranged in concentric layers, but forming a distinct reticulum. The blood-vessels in the walls of the sac were scanty, small in size, with exceedingly thin walls penetrating as far as the epithelial lining. No trace could be found of hair follicles, sudoriparous, or sebaceous glands.

For the purpose of furnishing a clear clinical picture of this form of branchial cysts I will give a synopsis of a few typical cases.

Langenbeck's case.[2] The patient was a female 17 years of age. Suffered from enlargement of cervical glands during her 12th year. Two years before the operation a soft swelling was noticed in the region of the left carotid triangle, which soon increased to the size of a hen's egg. A year later the whole neck, but especially the left side, was swollen, and the tonsils at the same time were considerably enlarged. Pains in the neck, and frequent attacks of angina had preceded these symptoms. The usual medicinal treatment in such cases and a visit to Kreuznach improved her general health, but the tumor increased in size, became more prominent, and showed distinct signs of fluctuation. At the time of operation, two years after its appearance, the tumor was oval in shape, and extended from the angle of the jaw downwards to a line on a level with the cricoid cartilage. Externally it was not very prominent, but on further examination it was evident that its base was firmly attached to the sheath of the large cervical vessels. The tumor could be felt through the walls of the pharynx, where fluctuation was distinctly felt. The anterior margin of the sterno-cleido-mastoid was somewhat elevated by the outer portion of the tumor, which received a distinct impulse from the underlying artery. The pulsations were felt most distinctly when the head and neck were turned toward the opposite side and in a backward direction. The tumor was punctured and a mass of yellowish semi-solid substance escaped, the solid portions of which were composed of epithelial cells and cholesterine crystals. The puncture was kept open by a linen tent. Later injections were made into the interior of the cyst of tr. iodinii, and when this produced no effect a concentrated solution of nitrate of silver was tried with no better result. The wound was kept open for a long time, but in spite of all efforts the cavity showed no tendency to close. A year later a seton was passed through the tumor, but without success, for as soon as it was removed the openings closed, and the cyst increased to its former size, causing pain and pressure, necessitating an incision which gave exit to a large quantity of fœtid pus. For four months the wound was kept open and iodine injections were again resorted to, but with no better effect than before. Nearly three years from the time the cyst was first noticed it was removed by extirpation. An incision was made along the anterior border of the sterno-cleido-mastoid, extending from the angle of the jaw towards the cricoid cartilage. In consequence of the long-continued inflammation, the cicatricial adhesions between the cyst walls and the surrounding tissues were found very firm, and could only be separated by a tedious and difficult dissection. When an attempt was made to isolate the tumor from the deep structures it was found to be intimately connected with the sheath of the internal jugular vein, so that, on making traction, the vein was elevated from its bed while the artery remained *in situ*. The base of the tumor and the vein appeared to form one coherent mass. The tumor was carefully drawn forward, the sheath of the vein opened and the attachments separated with the handle of the scalpel. The cyst extended upwards close to the jugular foramen and was attached to the styloid process. When the tumor was removed, the parotid gland, the styloid process, the submaxillary gland, and the right wall of the pharynx became visible in the wound. The internal jugular vein, deprived of its sheath, was seen completely isolated throughout the whole length of the wound. The carotid artery enclosed in its sheath lay also exposed in the wound. Hæmorrhage was moderate. Adhesive strips and lint compress constituted the dressing. The patient recovered without any untoward symptoms.

Langenbeck's case.[1] This was again a female, 20 years of age, otherwise in robust health, who consulted von Langenbeck in May, 1855. When nine years of age a tumor appeared on the left side of the

[1] Ueber die tiefen Atherome des Halses. *Archiv f. Klin. Chir.*, vol. xiv, p. 1.

[2] Beiträge zur chir. Pathologie d. Venen. *Archiv f. Klin. Chir.*, vol. i. page 1.

[1] Op. cit., p. 25.

neck, which rapidly increased in size. One year later Dieffenbach made an attempt to extirpate it, but when he discovered that it was adherent to the deep tissues of the neck he desisted from any further attempts to remove it, and contented himself with making an incision into the sac and emptying its contents, which had the appearance of a thin gruel. The cyst refilled and was again reopened by means of the actual cautery, the contents being of the same character as before. The wound was kept open for a number of years, and the cyst discharged continually. Finally the opening closed, and the tumor disappeared almost completely until, in 1854, it again increased in size, and when first seen by Langenbeck, it was as large as a pigeon's egg. It occupied the left side of the neck on a line with the upper border of the thyroid cartilage, and between it and the inner border of the sterno-cleido-mastoid. It was firm, but imparted to the touch an indistinct sense of fluctuation. The cicatrices resulting from previous operative procedures had produced firm adhesions between the sac and the skin. With some difficulty the tumor could be separated from the artery. Its location rendered it probable that it was connected with the sheath of the cervical vessels. As the tumor increased and became more painful, it was extirpated May 10, 1855. The unyielding cicatricial tissue was included in the incision and removed, the fascia of the neck was divided and the inner border of the sterno-cleido-mastoid exposed. It was found extremely difficult to sever the adhesions around the cyst walls, and the sac was ruptured on the inner surface during one of these attempts. The collapsed sac was seized with sharp hooks and drawn over toward the median line of the neck, and while the sterno-mastoid muscle was pushed in an opposite direction the dissection was continued carefully toward the base of the tumor. A broad pedicle connected the cyst with the large cervical vessels. With the index finger the carotid artery was pushed backwards and outwards with a view to keep the jugular vein, which was on the outer side of the artery, at a safe distance. As the pedicle was being divided with the scissors a sudden gush of dark venous blood welled up from the bottom of the wound, which in a moment completely flooded the neck and the operating table. The operator immediately made digital compression above and below the wound, while an assistant made direct compression with a sponge. The hæmorrhage soon ceased and the sponge was carefully removed. A careful inspection of the floor of the wound showed that the jugular vein was completely out of sight, covered by the muscular tissues of the neck, and as the hæmorrhage had ceased, it was not deemed advisable to resort to any severer measures for the purpose of guarding against another attack of hæmorrhage. After removing all coagula the wound was filled with lint, its margins were drawn together with strips of adhesive plaster, over which a compress was applied. An icebag was placed over the seat of operation. The wound healed kindly and the patient made a complete recovery. An examination of the cyst revealed that a piece of the anterior wall of the internal jugular vein, four lines in length, and two and one half lines in width, was attached to its under surface. Professor A. Luecke, then Langenbeck's assistant, in a paper on "Atheromatous Cysts of the Lymphatic Glands,"[1] makes the following comments on Langenbeck's first case: The attempt to remove the tumor by puncture and subsequent injections of iodine had failed, hence extirpation was resorted to. Traces of the former operative procedures may still be seen in the tumor, and its peculiar structure renders evident why simple puncture and injection proved unavailing. The external appearance of the tumor presents a greater similarity to an hypertrophied lymphatic gland than to an atheromatous or dermoid cyst. It has the same oval shape, and the different processes of areolar tissue that I have observed in cases of lymphatic sarcomata. It is surrounded by a thin capsule of areolar tissue and before removal gave evidence of distinct fluctuation. To differentiate between a tumor of this kind and a suppurating hypertrophied lymphatic gland is, even after removal, extremely difficult if not impossible. Errors in diagnosis are therefore not only possible but often unavoidable, but fortunately they are of no great consequence in respect to the treatment. When an incision in the tumor was made a purulent fluid was discharged, which under the microscope presented the characteristic atheromatous matter.

Gurlt[2] mentions the great similarity existing between the contents of these tumors and those of ovarian cysts. We see in our case under the microscope, fat-cells, large masses of epithelia either without or with multiple nuclei. Many cells are filled with free molecular fat, others contain fat-cells, and occasionally large nuclei are seen. We also observe the well-known crystals of cholesterin and small prismatic crystals which seem to be some form of inorganic salt, also lime in granular form. He quotes F. Hoppe, who has made a careful chemical examination of the contents of an atheromatous cyst, and has found the following to represent its chemical composition: 1.3953 grammes of atheromatous material contained the following: 0.2225 alcoholic extractive matter, 0.1235 ethereal extractive matter, 0.2005 aqueous extractive matter, 0.8555 insoluble matter. In these different ingredients he found leucin, tyrosin, cholesterin, myelin, palmitin, and stearin. Usually these cysts constitute spherical cavities surrounded by a thin smooth membrane, rarely with thickened walls or wart-like elevations, or fan-shaped protuberances, but in this instance we see cavities of greater or less size embedded in a dense parenchyma of a reddish white color which constitutes the bulk of the tumor. The cavities are distinctly separated from each other, and are not in contact with the external capsule of areolar tissue. Wart-like vegetations cover the cyst wall and protrude from it. Sections through the parenchyma show small spaces separated by areolar tissue and filled with granular matter. The contents of these follicles are lymph corpuscles and amyloid granules. These latter were soluble in glycerine, but remained unaffected by acids and alkalies.

In opposition to the views advanced by Luecke, it

[1] Ueber Atheromcysten der Lymphdrüsen. *Archiv f. Klin. Chir.* vol. i, p. 356.

[2] Die Cystengeschwülste des Halses. Berlin, 1855, p. 268.

may be stated that the consecutive attacks of inflammation and suppuration so modified the contents and altered the structure of the cyst walls that the primary structures of the tumor was lost. The cyst wall by chronic inflammation became thickened, and the tissue proliferation of the adjacent structures may have invaded the interior of the sac and thus rendered an anatomical diagnosis exceedingly difficult or impossible. The location of the tumors, the clinical history, as well as the age of the patients, render it more than probable that both of Langenbeck's cases were atheromatous branchial cysts.

Schede calls these cysts deep-seated atheromatous cysts of the neck, without reference to their origin from imperfectly closed branchial clefts. I will describe in brief the three cases that came under his observation at Volkmann's clinic.

Volkmann's case reported by Schede.[1] The first case was that of a young man 17 years of age, who had always enjoyed perfect health. Two years before the operation the patient noticed a small smooth and round tumor which began to develop on the side and upper portion of the neck close to the anterior margin of the sterno-cleido-mastoid. It was painless, somewhat movable, and soon increased in size so as to give rise to deformity, and difficulty in deglutition. In February, 1870, it had reached the size of a goose-egg, presenting a smooth surface and a round or oval contour. The tumor was punctured at this time with a trocar, when about 30 grms. of a cream-like fluid was removed. The puncture was followed by an injection of tr. iodinii which was again withdrawn after remaining for a few minutes. The microscope showed an abundance of large flat cells in the fluid removed. In a month later the tumor had returned to its former size. A longitudinal incision was now made over the tumor and the cyst extirpated. The adhesions were not firm, and the operation was completed without meeting with any difficulties. The tumor was situated upon the sheath of the large cervical vessels, but was easily separated from them. Posteriorly it extended to a point between the pharynx and trachea. The wound healed promptly and the patient recovered completely.

Volkmann's second case reported by Schede.[2] This was also a young man 15 years of age, who, 18 months previously, noticed a small tumor on the anterior margin and about the middle of the sterno-cleido-mastoid. It increased slowly in size and resisted all ordinary attempts at treatment. When he came under Volkmann's care it had attained the size of a hen's egg. It was painless, oval in shape, with a smooth surface, and presented evidences of fluctuation. The extirpation of the tumor was again done and presented no difficulties whatever, as the attachments were not firm and could be easily separated. Posteriorly it reached as far as the cervical vertebræ, which could be plainly felt after the removal of the cyst. The walls of the sac were very thin and a microscopic examination of the contents revealed the presence of epithelial cells in a state of fatty degeneration.

[1]Ueber die tiefen Atherome des Halses. *Archiv f. Klin. Chir.*, vol. xiv, p. 1.

[2]Op. cit. p. 3.

Volkmann's third case reported by Schede.[1] This case was a female, 22 years of age, who, when 11 years old, noticed a small tumor in the left upper cervical region. Irritating applications had induced inflammation, suppuration, and a spontaneous evacuation of a thin sanious pus, whereupon the tumor disappeared. In her 17th year the tumor reappeared in the same place which, in spite of all treatment, increased in size, encroaching somewhat upon the cavity of the mouth. At the time the operation was performed it extended from the mastoid process to the angle of the jaw, being about 2½ inches in length and 1½ inches in breadth. The tumor was painless and movable, moderately tense, and through the mouth fluctuation could be detected. The cyst was removed through an incision parallel with the lower margin of the jaw. The adhesions in front and on the sides of the tumor were slight, but the attachments to the styloid process were firm, and were severed with the finger. The sac was opened and contents evacuated to facilitate the detachment of the cyst from the deep structures beneath; this was done with curved scissors. The tumor was not adherent to the sheath of the large cervical vessels in this case. Like in the preceding cases, the contents were composed largely of epithelial cells. Recovery was prompt and permanent.

The cases reported by Schede furnish an instructive and practical illustration of the fact that the firm adhesions to the sheath of the deep cervical vessels which were observed in Langenbeck's cases are the direct result of prolonged irritation and inflammation in the walls of the sac and the adjacent tissues, and that the removal of these tumors can be accomplished with comparative ease provided such inflammation has not preceded the operation.

Virchow's case.[2] Under the name of auricular teratoma of the neck, Virchow describes a branchial cyst in the person of a seamstress 24 years of age. It was first noticed when the patient was in her 14th year, when it was as large as a filbert. It increased slowly in size, and when first seen by Virchow it had attained the size of a goose-egg. It was located between the angle of the jaw and the mastoid process, and was firmly attached to the sheath of the carotid artery. The cyst was filled with a creamy yellowish fluid which contained free fat and epithelia. The walls were studded with sebaceous follicles, especially on the side toward the carotid artery. The portion attached to the sheath of the vessels contained a plate of cartilage which resembled the cartilage of the ear, hence he designated the tumor as an *auricular* teratoma. Virchow attributed the origin of this and analogous growths, to an imperfect obliteration of one of the branchial clefts. In his classification he includes the cysts which are developed from branchial clefts among the teratoid tumors.

Three cases of atheromatous branchial cysts have come under my own observation.

Case I. Mrs. H., æt. 36, German. Family history reveals no tendency to congenital malformations.

[1]Op. cit. p. 3.

[2]Virchow u. Hirsch's Jahresbericht, 1866, vol. ii, p. 418.

General health excellent. About a year ago the patient discovered a small tumor on the right side of the neck between the angle of the jaw and the larynx, which slowly increased in size, and after a few months became the seat of an acute inflammation which terminated in suppuration, requiring an incision for the relief of urgent symptoms. The fluid which escaped consisted of pus mixed with a gruelly substance. Prompt relief followed the incision. The inflammatory symptoms subsided and the tumor diminished in size. In a few weeks the opening closed, leaving a small and painless swelling. The same symptoms were repeated about four months subsequently. When the patient came under my observation during the summer of 1883, I found a tumor about the size of a hen's egg located between the angle of the jaw and the larynx, resting directly upon large vessels of the neck, as was evident from the distinct pulsations which it received and which could be seen and felt. The posterior portion was under the sterno-cleido-mastoid. Over its centre was seen the scar which had resulted from the previous incisions. The swelling presented a regular smooth surface and an oval outline with the long diameter parallel to the cervical vessels. (Fig. 1.)



Fig. 1.

It was only slightly movable from side to side and perfectly immovable from above downward, showing that it had a firm point of attachment to the deep tissues of the neck. Fluctuation could be detected on the outer surface and also through the mouth. The original location corresponded to the third branchial cleft. As it had on two different occasions undergone acute inflammatory changes without any benefit resulting from them, the extirpation of the cyst was deemed the only measure which promised a permanent result. The operation was done under antiseptic precautions. A straight incision was made over the tumor parallel to the sterno-cleido-mastoid. The cyst was found firmly adherent to the surrounding tissue as the result of the antecedent inflammatory infiltrations and required much time and patience in its separation. After isolating it from all attachments on its sides, it was seized with a tenaculum forceps and drawn forward and toward the median line of the neck, while the sterno-cleido-mastoid was held in an opposite direction so as to afford easy access to its base. The attachments here were very firm, and it appeared as though the base of the tumor and the large cervical vessels underneath were imbedded in a mass of cicatricial tissue. Keeping as close to the cyst wall as possible, the dissection was continued very carefully, proceeding mostly with blunt instruments. When nearly one-half of the pedicle was separated in this manner, we were suddenly surprised by a tremendous gush of dark venous blood, which in a second flooded the whole field of operation. It was only too evident that the internal jugular vein had been torn, and, for the purpose of preventing further loss of blood and to guard against instant death by admission of air into the vein, I made firm digital compression above and below the injured vein, while an assistant pushed a sponge into the wound. Hæmorrhage was controlled in this manner, and as soon as I could be relieved by one of my assistants I removed carefully the sponge, and, after locating as nearly as possible the exact seat of bleeding, I seized the vein with some of its adjacent tissues with a stout pair of hæmostatic forceps. I was fortunate enough to grasp the bleeding point at the first attempt, and the hæmorrhage was completely controlled. The tumor was now removed, and by making slight traction on the forceps the vein was drawn forward and a catgut ligature applied without isolating the vessel. I was unable to ascertain the exact size or direction of the wound in the vein, but the ligature arrested the hæmorrhage promptly and permanently. The wound was thoroughly irrigated, and, like in Langenbeck's case, the vein seemed to disappear underneath the deep tissues of the neck. In the wound could be seen the œsophagus, lateral wall of the larynx, carotid artery in its sheath, and the great horn of the hyoid bone. After suturing and draining the wound a graduated compress was applied. For the first 24 hours after the operation the patient suffered from intense headache in the corresponding side, which induced me to believe that the circulation in the vein had been completely interrupted, either by the ligature alone or by the formation of a thrombus at the point of ligation. After the first 24 hours the patient suffered no further inconvenience. The wound healed by primary union and the recovery has been permanent and complete. There is no question but that the adhesions of the cyst with the sheath of the cervical vessels were due to the attacks of acute inflammation which had preceded the operation on two different occasions. A microscopical examination of the contents showed flat epithelial cells, cholesterine crystals, fat granules, and a mass of debris, the product of epithelial degeneration.[1] The cyst wall was composed of connective tissue, thickened and infiltrated with embryonal elements and lined with flat epithelial cells.

[1] See cuts Nos. 2 and 3 on following page.

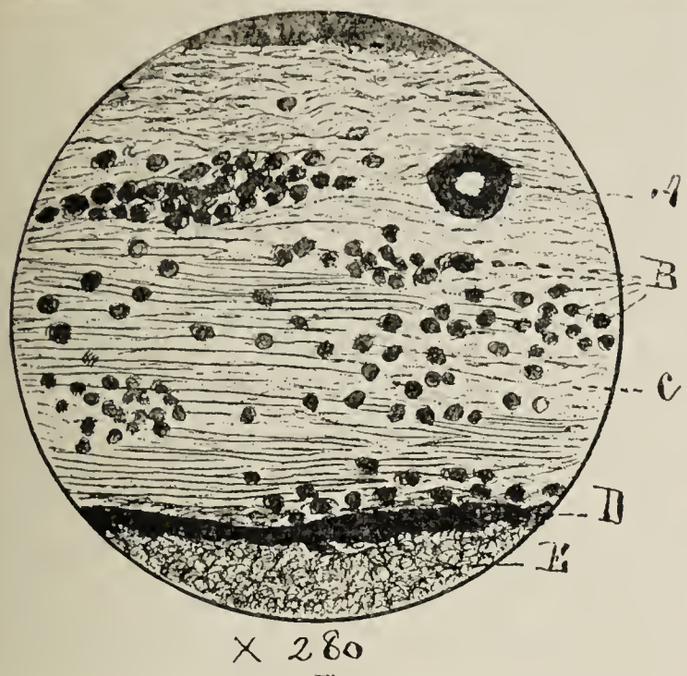


Fig. 2.

STRUCTURE OF CYST WALL.

A) Arteriole. *B*) Infiltrated in flammatory products. *C*) Fibrous tissue. *D*) Lining membrane. *E*) Contents of Cyst.

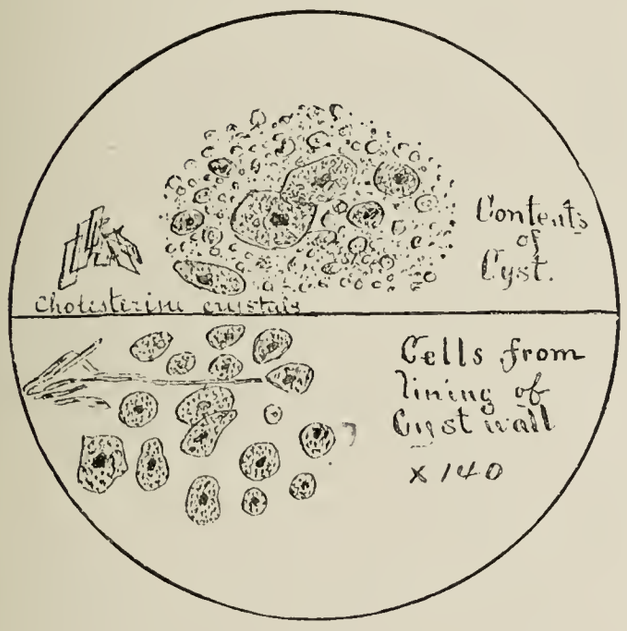


Fig. 3.

Case II. Mrs. P., æt. 22, American. Family history good, especially in reference to congenital deformities. About a year ago she noticed on the right side of the neck near the angle of the jaw a small deep-seated tumor, which, after attaining the size of a filbert, remained stationary, at times even diminishing somewhat in size. About two months ago it began to increase in size, and became the seat of a feeling of distress and pain. When she presented herself for examination (Dec. 13, 1883), it was about the size of a hen's egg. It is located over the bifurcation of the common carotid artery, pulsates distinctly, and makes pressure against the floor of the mouth and larynx, and reaches from the lower jaw to the upper border of the thyroid gland. Fluctuation is distinct, and can be distinguished through the mouth. The skin over it is natural in appearance and movable. At the base of the tumor firm attachments fix it to the deep tissues of the neck, which prohibit any motion from above downward, while slight lateral motion is possible. The history of the case, the age of the patient, the location of the tumor in the region of the third branchial cleft, appeared to furnish sufficient evidence to justify me in diagnosing an atheromatous branchial cyst. The patient objected to an operation, and I have not been able to ascertain the subsequent history of the case.

Case III. *Branchial cyst in the region of the second branchial cleft.* Mary H. æt. 25, German. Her family history is good, especially regarding congenital malformations, as tumors or fistulæ in the cervical region. Patient has always appeared round and full underneath the chin, but during the last four years a tumor has been growing rapidly on the floor of the mouth until, at present, it is considerably larger than a goose egg. The mouth is completely filled by it, the tongue is pressed against the palate, its movements are limited, only the tip of it being visible at the upper border of the tumor, and speech and deglutition are greatly impeded. (Fig. 4.)



Fig. 4.

Small dots in the mouth to represent the openings of Wharton's ducts.

Laterally, the tumor extends to near the angles of the inferior maxillary bone, and downward it overlaps the larynx and upper part of trachea, entirely obliterating the round contour of the upper cervical region. It is painless, and distinctly fluctuating to the touch, presents a smooth surface, and gives rise to no further inconvenience except from its mechanical interference with speech and deglutition. When the patient opens her mouth the apertures of Wharton's ducts are plainly visible on each side of the median line, and by exerting lateral pressure upon the sub-maxillary glands the patient can expel a stream of saliva from them. Previous treatment, as external application of iodine, etc., had had no effect on the growth.

Operation. Desiring to avoid any deformity resulting from an external cicatrix, it was decided to remove the tumor through the mouth. A linear incision was therefore made in the median line, from

above downward, extending from the tip of the tongue to the symphysis of the lower jaw, carefully avoiding the ducts of the salivary glands. When the sac of the tumor was reached, the adhesions existing between it and the surrounding tissues were easily severed with the handle of the scalpel. After freeing about one-half of the tumor in this manner it was found that it would be impossible to remove the tumor in its entirety in this manner, owing to its immense size. The sac was therefore opened and a large quantity of its gruelly contents removed by pressure. The operation then proceeded without any difficulty until the entire cyst was removed. It was now noticed that the cyst was constricted in its middle by the inferior maxillary bone, the upper and lower portions of it bulging out on both sides of the constriction. There was no hæmorrhage worth mentioning. The body and great wings of the hyoid bone could be plainly felt in the posterior recess of the wound. The cyst wall was thin, its external surface quite vascular. The microscopical examination of the contents of the cyst, as well as the primary location of the tumor, revealed its branchial origin. The wound was united with sutures, and a drainage-tube inserted. A compress underneath the chin fastened by a roller bandage, completed the dressing. The next day considerable swelling existed in the mouth, and had caused the sutures to cut through the tissues. The sutures were therefore taken out, and in place of the drainage-tube a pledget of iodoform gauze inserted, with the effect of entirely destroying the unpleasant odor which had arisen during the first 24 hours. In a few days the œdema subsided and the wound in the floor of the mouth had healed by granulation. The difficulty of swallowing and speaking disappeared, and nothing in the looks of the young lady shows any traces of the deformity which was disfiguring her face and neck previous of the operation.

Serous branchial cysts. This variety of branchial cysts is composed of thin cyst-walls and serous contents, and may develop from any one of the branchial clefts which fail to obliterate completely. This affection has been described under the name of *hydrocele colli* (Mannoir), congenital hygroma of the neck (Wernher), congenital hydrocele of the neck, and congenital cystic tumor of the neck (Thomas Smith). Mannoir, under the name of *hydrocele colli*, described certain serous cysts occurring between the angle of the jaw and the mastoid process, and between the larynx and the anterior margin of the sterno-cleido mastoid, a region which corresponds to the second and third branchial clefts, which were supposed not to be congenital. We have seen, however, that branchial cysts are not necessarily developed during intra-uterine life or soon after birth. All that is necessary is that the matrix for the cysts be present at birth, from which, at some future time, the tumor is developed. These tumors appear as single or multilocular cysts with thin membranous walls; their internal surface is lined with pavement epithelium. Like a serous membrane, they contain a limpid, watery, or tenacious fluid, holding in suspension epithelial cells and cholesterine crystals. These cysts are formed anywhere in the neck, within the area of branchial clefts, between the lower jaw and clavicle. They are usually deep-seated and occasionally superficial. They are painless and give annoyance only from their size. Clinically, they may be recognized from their location, their globular cystic form, soft fluctuating feel and painless growth. The existence of tesselated epithelium upon the inner surface of these cysts has been demonstrated by Neumann and Baumgarten. When these cysts spring from the second or third branchial clefts they are usually deeply located. Hueter,[1] in extirpating a tumor of this kind in a child two years of age, ascertained that it extended between the two carotid arteries back to the walls of the pharynx. When they are deeply situated they are usually in contact, and connected, with the sheath of the large cervical vessels, receiving a distinct impulse from the underlying artery. When thus located they offer the same difficulties to extirpation as the atheromatous variety. The following cases may serve as illustrations of this type of branchial cysts:

Wernher's case.[2] The patient was a healthy female child, which was born with a tumor on the left side of the neck, filling the whole space between the lower jaw and the clavicle, and from the ear to the median line of the neck. The tumor was smooth, tense, elastic, and fluctuating; toward the front part was a small abrasion. Respiration and deglutition were unimpaired. The tumor increased rapidly during the first ten days of the child's life. Wernher, to satisfy the mother, ordered a liniment containing two grains of pot. iod. to an ounce of oil. After a few days a small opening formed through which a dark, brownish-red syrupy fluid escaped for some days. No suppuration. The tumor sensibly diminished. After a time other openings formed in other cysts composing the growth, and the whole tumor began to shrink from the jaw toward the clavicle. Six months subsequently the child died of small-pox, and a post-mortem examination demonstrated that the tumor had completely disappeared.

Thos. Smith's case.[3] Geo. A., æt. 8 months. Healthy child, and well nourished. At the time of his birth a swelling was noticed behind his right ear, about the size of a hen's egg. This had gradually increased in size up to the time when he was first seen. It was then as large as a fist, and was situated in the posterior triangle, running up behind the ear and toward the angle of the jaw. The tumor was cystic, and evidently contained fluid. In parts it was tense and elastic, and elsewhere it felt flaccid, semi-solid, and lumpy. Smith passed a seton formed of a single thread of fine silk through the most prominent part of the tumor. The immediate result was to diminish the size of the swelling considerably, and subsequently to cause inflammation, suppuration, and discharge from two of the cysts. Three weeks after the introduction of the seton the cysts had quite collapsed, and the tumor had lost about two-thirds of its size. Another seton was introduced, with the result

[1] Grundriss der Chirurgie, 1880, vol. ii, p. 326.
[2] Die angeborenen Kysten-Hygrome, Giessen, 1843.
[3] Congenital Cystic Tumor, by Thos. Smith. St. Bartholomew's Hosp. Rep., vol. ii, p. 16.

of still further diminishing the size of the tumor until it was no larger than a marble.

The same author reports another case, which would show that these cysts may occasionally disappear by spontaneous absorption of their contents. The patient was a healthy babe, 3 weeks old. Immediately after birth a swelling was noticed in the neck, which rapidly increased in size. When first seen, a cystic tumor occupied almost the entire region of the left side of the neck, extending from under the lower jaw to the clavicle. The mother objected to any kind of treatment. Three months later the child was seen again, when the growth had greatly diminished in size. There was nothing to be felt but a loose, flabby cystic mass not much larger than a hen's egg. The skin over it was shrivelled, loose and baggy. Three months later the tumor was still smaller.

That these tumors may sometimes attain an enormous size, is evident from the following case reported by Frederic Treves.[1] It occurred in an infant, and took its origin in the region of the inferior maxillary bone, and occupied the whole side of the neck and upper part of the thorax on the same side, from where it extended as far as the umbilicus. It contained one large and numerous smaller cysts, corresponded to the region of the second branchial tract. No histological report of the specimen.

A very interesting description of a double branchial cyst is given by Vonwiller.[2] The specimen is contained in the Dresden Anatomical collection. The fœtus, of about 6 months, besides slight abnormities of the extremities and cleft palate, presents in the region of the neck a tumor nearly double the size of an infant's head, which is divided in the median line by a depression, which separates it into two symmetrical halves. The tumor reaches from the lower margin of the ear and the linea semicircularis of the occipital bone nearly to the apex of the scapula. Larynx and trachea free. Palpation reveals that the tumor consists of two large separate cysts. The skin over the cysts is thin and firmly adherent. The inner surface of the cysts is smooth, and resembles a serous membrane. No projections or remnants of septa can be seen. The septum dividing the two cysts is attached to the middle of the occipital bone and the spinous processes of the cervical vertebræ. It is covered with a similar membrane as the cysts, and separates them completely. The cysts do not communicate with the cavity of the cranium or spinal canal, nor with the mouth or pharynx. The inner surface of the cysts is lined with epithelium, only a small amount of solid contents composed of conglomerations of fatty epithelial cells. The anatomical diagnosis reads: Double branchial cyst—*Hydrocele colli congenita duplex.* The cysts originated, probably, in the cleft between the second and third branchial arches.

I will add another case, which came under my own observation.

Case IV. *Serous branchial cyst in the fourth branchial cleft.* The patient was a healthy, strong male child, 6 months of age. There is no history of congenital malformation, especially branchial fistula, in the family. When the child was born a small tumor the size of a pea was discovered on a level and somewhat to the inner side of the sternal origin of the sterno-cleido mastoid muscle. The tumor was painless and movable, but rapidly increased in size. When the child was brought to me, it was as large as a walnut. The skin over the tumor was natural in appearance and movable. The tumor itself presented a smooth surface. Fluctuation was distinct, but the cyst appeared to be somewhat firmly attached to the subjacent tissues. The cyst was readily enucleated, the adhesions not being very firm except over the most prominent point of the tumor, where inversion of the skin had undoubtedly occurred during the closure of the external opening of the fourth branchial tract. The adherent portion of the skin was excised with the tumor. The cyst is oval in shape, smooth, the outer layers quite vascular. The walls are thin, the contents serous, which render the whole tumor translucent. The wound was closed with sutures, and heale by primary union under an antiseptic dressing.

4. *Hæmato-cysts of branchial clefts.* In some instances of serous branchial cysts the fluid is discolored by an admixture of blood from minute hæmorrhages into the sac, but when the contents are of such dark color as to resemble venous blood they are properly called hæmato-cysts, and from a pathological, diagnostic, and clinical point of view constitute a distinct and well-marked variety of branchial cysts.

Albert[1] remarks that two kinds of these cysts have been observed: 1st. Such as may be emptied by pressure and are in communication with blood-vessels. 2nd. Those which cannot thus be emptied, and which simulate the appearance of an ordinary serous cyst so closely that their nature is only recognized by puncture. The latter class, when they occur in the neck, usually belong to the branchial cysts, because they are observed during early life and originate in places which correspond to the location of the branchial clefts. This variety of cysts has been called *hæmatocele colli*, by Michaux, and hæmatoma by J. P. Frank. Aside from their origin from branchial clefts, and the admixture of blood with the contents of serous cysts, such cysts may develop from dilated veins, both extremities of the dilated portion undergoing contraction and finally complete obliteration, completely isolating the contents of the cyst from the general circulation. Again, a vein may dilate at one point, forming a pouch or sac, and by contraction and obliteration of the orifice, a cyst is formed. Such a case was observed by Lloyd, in the region of the saphenous vein, and was described by Paget.[2] A somewhat similar case was examined by Virchow.[3] In this instance the disease was complicated by cancer, and the cyst developed from the internal jugular vein, where no communication with the vein could be found. Hæmato-cysts resemble the ser-

[1] Dissection of a Congenital Hydrocele of the Neck. Trans. Path. Soc., xxxii, p. 194. Virchow u. Hirsch's Jahresbericht, 1882, vol. i, p, 280.

[2] Ueber einige angeborene Tumoren. Inaugural Diss. Bern, Zürich, 1881. Centralblatt für Gynæcologie, 1882, p. 235.

[1] Lehrbuch der Chir. u. Operationslehre, vol. i, p. 443.

[2] Lectures on Surgical Pathology, 1853, vol. ii, p. 50.

[3] Die Krankhaften Geschwülste, vol. i.

ous cysts in every particular, with the exception of the presence of blood in their contents. Their diagnosis, however, is more difficult, and should always be made by exclusion, due attention being given to the location of the cyst, time of development, and character of contents.

Branchial cysts of the neck, as compared with other tumors in this locality, are of rare occurrence. The statistics of branchial tumors cannot be relied upon in estimating the comparative frequency with which these tumors occur, as many branchial cysts have been classified and described under the generic and indefinite term "Cystic tumors of the neck," without regard to their etiology. Gurlt,[1] in 1855, compiled 44 cases of serous, and 6 cases of atheromatous cysts. Since that time quite a number of new cases have been described by Volkmann, Billroth, Esmarch, Roser, Langenbeck, Luecke, and Burow. The serous variety is more likely to develop early; they are often congenital, or appear during infancy or childhood, while the atheromatous cysts are most frequently met with in young adults. Of 53 cases mentioned by Schede[2]

9	occurred	between	the	1st	and	10th	year of life.
21	"	"	"	11th	"	20th	" "
10	"	"	"	21st	"	30th	" "
6	"	"	"	31st	"	40th	" "
5	"	"	"	41st	"	50th	" "
2	"	"	"	51st	"	60th	" "

Like the dermoid cysts, the branchial tumors show a tendency to develop during the period of puberty, at a time when the epiblast enters upon a new phasis of development, and becomes the seat of renewed and active tissue proliferation. The remnants of the branchial cleft may remain dormant as a matrix for the future growth of the tumor for an indefinite period of time, and become the seat of tissue growth during puberty, or upon the advent of any determining cause or causes. There are undoubtedly many instances where remnants of fœtal tissue remain latent in the branchial tracts throughout a lifetime for want of an adequate exciting cause, which is necessary to call into morbid activity the slumbering forces inherent in the histological elements of the matrix.

Diagnosis. To diagnose the presence of a branchial cyst, is often no easy task. The importance of the tissues and organs which are in close and intimate relation with these tumors, renders it imperative upon the surgeon to make a correct diagnosis before an operation is undertaken for their removal. All witnesses should be examined carefully, and every diagnosis should be fortified by eliminating the existence of all other forms of tumors. The following conditions may simulate a branchial cyst: 1, Aneurism; 2, angioma; 3, dermoid cyst; 4, retention cysts; 5, affections of lymphatic vessels and glands; 6, struma cystica; 7, simple serous cyst.

1. *Aneurism.* As most of the branchial cysts are in immediate contact with the large cervical vessels and usually receive the impulse from the underlying artery, it is always important to exclude the possible presence of an aneurism. At the age when branchial cysts are most frequent, aneurisms, except of traumatic origin, are exceedingly rare. Pressure does not affect the volume of a branchial cyst, and the pulsations are felt only in one direction, away from the artery. Auscultation furnishes another important negative symptom. An exploratory puncture, which should always be made in doubtful cases, will also furnish valuable information, as it will afford an opportunity to examine the contents of the cyst under the microscope, and such examination will not only help to substantiate the diagnosis, but, in many instances, will by itself be sufficient to arrive at positive conclusions. In hæmatocysts, the contents may resemble venous blood, but a microscopical examination will show in addition the presence of epithelium or the products of epithelial degeneration.

2. *Angioma.* Deep-seated angiomata of the neck are occasionally met with in children, and as the skin may present a perfectly natural appearance they might be mistaken for a branchial cyst. If the tumor disappears under pressure, it may be an angioma, but never a branchial cyst.

3. *Dermoid cyst.* As dermoid cysts may occur in the same localities, and at the same age, they are frequently mistaken for branchial cysts, and *vice versa.* A number of authors classify deep-seated atheromatous cysts with dermoid cysts. As both varieties of cysts require the same treatment, a positive diagnosis is not essential. A correct anatomical diagnosis can be made by examining the contents and the cyst walls. A branchial cyst contains only one constant histological element—epithelium, as obliteration of the branchial tracts takes place long before the appendages of the skin are developed. A dermoid cyst, on the other hand, as its name implies, contains the products of secretion of the skin and the organs which it contains, the hair follicles, the sweat, and sebaceous glands. Lanuginose hair and hair follicles are never present in a true branchial cyst, while they are frequently found in the contents of dermoids. The walls of a branchial cyst are composed of a connective tissue capsule lined with epithelium, while on the other hand, the sac of a dermoid cyst is composed of true skin.

4. *Retention cysts.* The only two forms of retention cysts which call for consideration in this connection are the true atheroma of the skin, the result of obstruction in the ducts of the sebaceous glands and the retro-tracheal cyst, which originates in a similar manner in the retro-tracheal glands. Cysts arising from the second and third branchial clefts are always deeply located, and when first observed are distant from the skin, while an atheroma primarily develops in the skin, and usually grows in a peripheral direction. Branchial cysts are always congenital, atheromatous cysts acquired. Lanuginose hair is sometimes found in the contents of an atheroma, the product of retained hair-follicles; it is never seen in branchial cysts. Another important anatomical difference will be found in the outer portion of the capsule of the cyst and its relation to the surrounding tissues. In branchial cysts the capsule is quite vascular, and intimately connected with the adjacent structures, the reverse being true of the retention cysts.

[1] *Archiv für Klin. Chirurgie*, vol. xiv.

[2] Die Cystengeschwülste des Halses. Berlin, 1855.

Virchow[1] has called attention to a peculiar kind of retention cyst between the œsophagus and the trachea arising from an obstruction in the duct of one of the retro-tracheal glands. These glands are situated between the trachea and the œsophagus, but their ducts traverse the entire thickness of the tracheal wall and terminate upon the free surface of the mucous membrane. These cysts are so located that they give rise to distressing symptoms referable to deglutition and respiration before they attain any considerable size, and before their existence is suspected or detection is possible, differing greatly in this respect from the clinical history of a branchial cyst.

5. *Affections of lymphatic vessels and glands.* A deep-seated isolated caseous lymphatic gland might be easily mistaken for a branchial cyst, more particularly after the cyst had become the seat of inflammatory infiltration. Luecke[2] claims that he has observed the development of dermoid cysts within lymphatic glands. It is seldom that we meet any such extensive pathological changes in a single lymphatic gland to such a degree as to simulate a branchial cyst, without participation of one or more adjacent glands. Again, in cases of disease of the lymphatics the general condition of the patient usually indicates the existence of a serious affection, while a branchial cyst is a purely local condition, never affecting the general health of the patient, except when by compression it interferes with important functions of neighboring organs. Köster is of the opinion that many of the multilocular cysts of the neck are the result of lymphangiectasis, but in such cases a microscopical examination would show the presence of endothelia which would exclude the branchial origin of the tumor. Cancerous or sarcomatous affections of the lymphatic glands would reveal themselves by the clinical symptoms characteristic of these tumors.

6. *Struma cystica.* Cystic degeneration of the thyroid gland proper can never be mistaken for a branchial cyst, as the connection of such cysts with the thyroid body can be traced without any difficulty, but recently it has been ascertained that not infrequently small accessory thyroid glands exist in the neck which may undergo cystic degeneration, and Madelung has made the assertion that the so-called hydrocele of the neck is only a struma cystica of a supernumerary thyroid gland. The possibility of a cystic degeneration of such an accessory thyroid body should always be borne in mind in all examinations for branchial cysts.

7. *Simple serous cysts.* Virchow asserts that many of the serous cysts develop without a particular matrix, as new formations in the connective tissue. It is a well-known physiological fact that the connective tissue cells are occasionally converted into endothelia, as during the formation of new synovial membranes, hence we should *a priori* expect that in simple serous cysts developed from connective tissue the inner surface of the sac would be lined with endothelia, the existence of which would be sufficient to disprove their branchial origin.

[1]Die Krankhaften Geschwülste. Berlin, 1863. Vol. i, p. 246.

[2]Die Lehre von den Geschwülsten. Pitha u. Billroth's Handb. d. allg. u. op. Chir. Vol. ii, p. ii, p. 127.

Cystic degeneration of the ganglion caroticum has been supposed to resemble branchial cysts. Luschka[1] has described a ductless gland between the external and internal carotid arteries, near the bifurcation of the common carotid, to which he has applied the term ganglion caroticum. As this gland is located where branchial cysts usually are found, he has made the assertion that many of the cysts in this region are due to a cystic degeneration of this gland. To cysts originating in this manner he has applied the term *hygroma colli.* The researches of Julius Arnold, however, do not corroborate the observations of Luschka, and Virchow positively denies the glandular nature of this body.

In repetition I will enumerate the following points, which should be considered in the differential diagnosis of cystic tumors of the neck and with special reference to branchial cysts: 1. Primary seat of tumor. 2. Effect of pressure. 3. General condition and age of patient. 4. Character of contents.

Prognosis. Branchial cysts, although heterologous formations, always remain purely local affections and manifest no tendency to destroy life, except when they are of sufficient size to interfere by their presence with the performance of important functions of neighboring organs. On the other hand, it may be said that they manifest no tendency to spontaneous cure and prove exceedingly rebellious to all forms of treatment short of complete extirpation. The serous variety in exceptional cases may undergo spontaneous absorption, and, as a rule, is most amenable to the milder forms of treatment. After the development of these tumors, their further growth may become stationary for a short time, but their tendency is to increase in size until they encroach upon important organs, when the suffering and distress which they occasion call for decided and effective operative measures for their removal.

Treatment. The inner surface of branchial cysts being lined with epithelium, it is evident that obliteration of the sac can only be obtained after the destruction or removal of this epidermal lining. The radical treatment for the removal of these tumors must have for its object the production of an artificial inflammation in the interior of the sac of sufficient intensity to destroy the epidermal matrix, or complete extirpation of the cyst. The former procedure is exceedingly unreliable in its results, and extirpation in many instances must be looked upon as a very formidable and dangerous operation. The following methods have been resorted to in the treatment of branchial cysts: 1. Incision. 2. Actual cautery. 3. Seton. 4. Puncture with subsequent injection. 5. Extirpation. 6. Antiseptic drainage.

1. *Incision.* In all cases where incision was practiced, the relief from existing symptoms was prompt; the cyst collapsed, a certain amount of inflammation was established, suppuration followed, and, in some instances, the patient and surgeon were led to believe that a radical cure was obtained. Usually after healing of the wound a small nodule remained, which in a few months again became the seat of active tissue growth, and a speedy relapse was an almost constant

[1]Virchow. Op. cit. vol. iii, p. 93.

occurrence. The result was not materially modified in case the sac was drained and injected with iodine or other irritating solutions. In infants the laying open of cysts is a perilous plan of treatment. Volkers relates a case where a cystic tumor was laid open in a new-born child who died 16 days afterward in consequence of the operation. A branchial cyst cured by simple incision is reported by Billroth. In the case of serous cysts where the seton and iodine injections have occasionally been successful in producing obliteration, it seems to me that the same object would be accomplished more speedily and safely by incision and drainage, practiced in a similar manner as in Volkmann's operation for hydrocele.

2. *Actual cautery.* Dieffenbach employed the actual cautery in opening the cyst in one of his cases after he had made an unsuccessful attempt in removing it by extirpation, and after incision had failed in producing obliteration of the sac. The use of the cautery met with no more encouraging result. It would seem to me that incision combined with an energetic use of the cautery would be most applicable in the most dangerous and formidable class of cases, namely, in cysts which have become firmly adherent to the sheath of the cervical vessels by repeated attacks of inflammation. Should I ever meet with a similar case as the one reported in this paper, where the internal jugular vein was injured, I should make a free incision into the cyst, and after removing as much of the sac as would be compatible with safety and after exposing to sight the floor of the cyst, I should destroy the entire epidermal matrix of the attached portion with a Paquelin cautery. The wound could be sutured and dressed the same as after excision, by which primary union of the wound with complete destruction of the matrix of the tumor could be secured, without exposing the patient to the much greater risk of injury to the internal jugular vein which would be incurred by attempting complete extirpation.

3. *Seton.* This form of treatment proved successful in several of Thos. Smith's cases of serous cysts of the neck, but in some of them the branchial origin of the cysts does not appear to be established. Smith[1] uses a single thread of silk, and removes it before suppuration sets in. If the tumor is polycystic, he attacks only one cyst at a time. Gurlt very justly has entered his protest against the use of the seton. Like in hydrocele, the seton is an exceedingly uncertain agent in calculating with precision the amount of inflammatory action which will follow its use. The degree of irritation produced by it is very liable to be inadequate to produce adhesion, or it exceeds the desirable boundary and induces suppuration with all its evil consequences. Even the seton is not devoid of danger. Butlin reports the case of a young child where a seton was passed through a serous tumor, and which was followed by death on the third day from the violence of the inflammation.[2] For this and other obvious reasons the seton should never be used in the treatment of branchial cysts.

4. *Puncture with subsequent injection.* In the transactions of the fourth Congress of German Surgeons the treatment of branchial cysts by puncture and injection was fully discussed.[1] Esmarch's experience appeared to be the most extensive, and his results were more uniformly favorable than in the practice of any other surgeon. The following are some of Esmarch's remarks on this subject:[2]

"I have cured about a dozen cases by puncture and subsequent injection of Lugol's solution of iodine. (Iodinii, pot. iod. āā 1.25, aquæ 30.0). Against this treatment it has been urged that complete extirpation of the cyst can always be done and is free from danger. I must deny this assertion, because in a majority of cases the cyst is adherent to the sheath of the internal jugular vein, a fact which may remind you of a paper on this subject by Prof. von Langenbeck, which served as an introductory to his Archiv in 1860. In this paper Langenbeck called special attention to the dangers connected with this operation. But even if the operation were free from danger, yet by resorting to it we obtain an unsightly cicatrix in the neck, to which the female sex objects. I can, on the other hand, recommend injections of iodine as an efficacious and entirely safe procedure. If some of you have failed to see its benefits, it is, I believe, because you have not had the necessary patience and perseverance. As a rule, I have repeated the operation whenever obliteration did not promptly follow the first puncture. It is very essential to irrigate the sac thoroughly before the introduction of the iodine. I have generally proceeded as follows: By means of a fine hydrocele trocar I empty the sac of its contents, and then make repeated injections of a one per cent. solution of carbolic acid. This removes the masses of epithelium adherent to the cyst-wall. I continue these injections until the water returns perfectly clear, and then I inject 10–20 grms. of Lugol's solution of iodine, which, after gentle pressure to bring it in contact with the inner surface of the sac, is allowed to escape. The patient is then directed to return in six or eight weeks. Like a hydrocele, the cyst refills rapidly and becomes somewhat painful. If, after the lapse of time mentioned, it has not greatly decreased in size, I repeat the same operation, and tell the patient to return in six months, when the cyst will be found atrophied to a small tubercle. In most cases the cure has been permanent."

In the discussion which followed, Langenbeck said: "I have treated a number of dermoid cysts with fatty contents by means of injections of iodine, but the injections always required repetition. I punctured the cyst with a large trocar, introduced a piece of elastic catheter and made daily injections. A few cases were cured after three or four injections. In one case the tumor returned. I consider it very difficult to cure these fatty cysts with injections of iodine or any other substance."

Roser admitted that injections of iodine might succeed in serous and mucous cysts, but that they would prove of no avail in atheromatous cysts. Baum asserted that extirpation was an easy matter, and that these cysts could be removed without difficulty.

[1] Op. cit.

[2] International Encyclop. of Surgery, New York, 1884. Vol. iv, p. 663.

[1] Verhandl. der deutschen Gesellschaft f. Chirurgie, 1876, p. 25.

[2] Op. cit., p. 129.

Bardeleben believed that some of these cysts, especially those which extend behind the sternum, could not be extirpated, but obliteration in one instance was accomplished by antiseptic drainage. Volkmann spoke in favor of extirpation and warned against injections of iodine, as in case of failure they would render a subsequent excision more difficult.

It is evident that the majority of German surgeons who have given a good deal of attention to this subject have no confidence in the efficacy of iodine injections in obliterating branchial cysts. If we consider the numerous failures of iodine injections in cases of hydrocele, where the anatomical conditions for success are so much more favorable, we will be better prepared to appreciate the causes of its still more frequent failures when used in the treatment of branchial cysts. Again, clinical experience has shown that branchial cysts can be extirpated with comparative ease and safety before the cyst has become firmly fixed to the subjacent cervical vessels by inflammatory infiltration and that in this class of cases iodine or any other injections will not only prove useless, but will render a subsequent extirpation still more difficult. In infants even simple tapping is not always devoid of danger, as one instance is recorded of death caused by puncture. The case occurred to Volkers, who tapped a cystic cervical tumor in an infant eight days old, the child dying of trismus on the third day.[1]

5. *Extirpation.* A positive diagnosis made, the best plan to pursue is to make an incision over the most prominent portion of the tumor, and, in case the adhesions can be separated without endangering the deep cervical vessels, the entire cyst should be removed. If inflammatory infiltrations obscure the field of operation at the base of the tumor, and after careful examination it is not deemed advisable to perform complete extirpation, the sac should be opened and the lateral walls excised, and the epidermal matrix, which remains adherent to the sheath of the cervical vessels, can be destroyed completely by a careful but vigorous use of the actual cautery. The treatment of the wound should be conducted as in cases of complete excision. If an early diagnosis is made, and prompt treatment instituted, complete extirpation should always be attempted, and will in the majority of cases prove successful and comparatively free from danger.

6. *Antiseptic drainage.* In the case of infants and very young children suffering from large serous cysts, it would be imprudent to resort to any of the severer measures with a view to a radical cure. In such instances, drainage under antiseptic precautions should be resorted to as a temporary measure, and in some instances it may be followed by permanent results. The same course of treatment should be adopted in adults suffering from cysts which are inaccessible to any other operation, and in which irritating injections are contra-indicated.

[1] Dr. Storch, Ueber das angeborene Hygrom des Halses. *Journal für Kinderkrankheiten.* Vol. xxxvii, p. 68.

A COMBINED VISUAL AND ASTIGMATIC TEST-CARD OF WORDS MADE UP OF LETTERS CONFUSING TO THE ASTIGMATIC EYE---REMARKS ON ASTIGMATISM, CHARACTERISTIC MANNERISMS.

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Read in Section on Ophthalmology, Otology and Laryngology of the American Medical Association, May, 1884,

The influences of optical defects are three-fold; first, productive of vision less than normal; second, are productive of certain ocular diseases or render acute attacks of eye disease chronic by their presence; third, there are produced by their presence, headache, nervous symptoms, gastric disturbance, many cases of so-called biliousness and a chain of reflex symptoms due to the accommodative effort. Cases presenting a manifest defect of vision, seek relief by glasses, and are satisfied either partially or fully, as the manifest or total defect is corrected. In cases where ocular disease, or the form of trouble described under the third classification exists, accommodative effort may conceal the defect, which any of the mydriatics will expose and relieve the symptoms if they are the result of the optical condition of the eye; glasses are required to take the place of the therapeutic action of the mydriatic, and they represent the accommodative effort, which is not natural to an emmetropic eye.

Simple myopia or hypermetropia is productive of trouble in a small proportion of the cases under the second and third classifications, but more prevalent in the first. The myopic or hypermetropic forms of astigmatism are the more frequent condition in the last two classifications; either alone, simple astigmatism, or combined, the former with myopia, the latter with hypermetropia, compound astigmatism; or the two forms of simple astigmatism may co-exist, forming mixed astigmatism.

In a paper I read before the American Ophthalmological Society, 1880, a tabular report exhibiting the position of the axis of the cylinder in simple, compound and mixed astigmatism, the myopic and hypermetropic form compared, with remarks, (Transactions, 1880), it is stated that simple astigmatism is present in 45½ per cent., compound astigmatism in 50 per cent., mixed astigmatism in 4½ per cent. of cases of abnormal astigmatism. A continued experience in refraction imposes a stronger belief of the influence astigmatism has as an optical defect in producing trouble, especially in the third classification.

While an instrument of precision, like the ophthalmoscope, enables these defects to be recognized, by either the direct or indirect method, or by kerotoscopy or retinoscopy, the instrument must be properly handled, which is not difficult if undertaken to be learned, and though numerous visual tests already exist to enable the defect to be exhibited by a patient, they require a proper understanding to attain a diagnosis; and several tests have to be appealed to instead of one.

It has been my desire to put in the hands of the medical profession a visual test that will exhibit manifest defects more markedly, and bring out to a greater degree latent defects without a mydriatic, than I have found the various useful tests already devised seem to do, especially for the recognition of abnormal astigmatism; also, to express by the test a value for the defect as it is exhibited by the patient.

A point of light of a given size at a given distance, is sufficient to demonstrate all optical defects, especially astigmatism, certain conditions being obtained to render it fully effective; other simple methods to recognize astigmatism are the inability to recognize with equal definition, at a given distance, the radii of a circle of a given size; or call a letter O an O. Dr. Pray's astigmatic letters; Dr. John Green's test diagrams for the detection and measurement of astigmatism; Dr. Wm. Thomson's ametrometer; Javral's instrument, and numerous other valuable methods, by foreign and home observers, are at hand, based on given fixed laws in optics.

The letters in Snellen's type, or in all other letter tests, will exhibit the astigmatic defect; by the way the person tested expresses the name for the spherical and right-angled letters in the test; O is called C or G; F is called P; B is called S; the reverse holding; they distort the letters and are confused.

In simple myopia or hypermetropia with normal astigmatism, no such distortion or confusion occurs, but total obliteration of a letter of a given size, at a given distance according to the degree of the trouble.

This fact of the distortion of the letters by astigmatic eyes, has long been recognized and was spoken of by Dr. Reynolds, of Louisville, at the meeting of this Section of the Association at Richmond, in 1881; I then stated I had used this distortion, as a means of diagnosing astigmatism.

During the past year, I have been trying the value of a test, based on this distortion and confusion of letters, and now present it to the medical profession, especially general practitioners.

The letters most frequently distorted have been selected from Snellen's type and formed into a word; underneath this word have been placed the letters of the same word, as they appear to an astigmatic eye, so that a person affected, will say, that each line of letters is alike, and the word in the upper line and letters in lower line, are the same word; no dissimilarity existing as there would be to an emmetropic eye.

To give an approximate mathematical expression to the degree of the defect, manifest or latent, in myopia or hypermetropia (simple) or in astigmatisms of all forms, the size of the letters are graded in the word from D = 18 to D = 6. Four letters being taken to form the word and four letters in the confusion line below it, same grade and size of letters under one another. The word FOOL has been selected. In an astigmatism of 1. D manifest or after use of a mydriatic, the test being made from 6 meters, the size of the last letter in the word being D = 6., F. is called P; each O in turn is called C; L is called I; — PCCI underneath FOOL appears the same as FOOL itself, and are stated to be similar in appearance or nearly so. Astigmatism 0.75 D will distort the last three letters in the word at 6 meters, that of 0.50 D the last two letters, that of 0.25 D the last letter at 6 meters.

In simple myopia or hypermetropia with normal astigmatism of 1. D at 6 meters the whole word will be unrecognized and the letters underneath as well; no distortion or confusion occurring, but obliteration from spherical defect.

To obtain the position of the good and bad meridian in astigmatism, the horizontal lines, one above FOOL, the other below PCCI, will enable this to be found out by rotating them horizontally, vertically or obliquely to either side before the patient; the size of the lines are each D = 9. Cited at 6 meters, both are seen clearly in one position and not at right angles to this position, the astigmatism is 0.50 D or more, the axis expressed by the angle they are held, defect same at 9 meters also. The word COCOON D = 9, letters uniform size, if distorted at 6 meters V = $^6/_9$, 0.50 D astigmatism exists or more; A illustrates the same principal as in FOOL and PCCI, only combined in one word and in one line of uniform size; it is a very expressive test and defects are rapidly recognized by it.

For astigmatism higher than 1. D the same type must be brought nearer to exhibit the defect; but in place of this, the word NULLIFIED graded in size from D = 60. to D = 4. can be used; they are confusion letters, and in the letters above the letter D = 18., a defect higher than 1. D will be recognized from either 4 meters, or better at 6 meters; the higher the astigmatism the larger the letter confused. The word NULLIFIED has been placed at the top of the card and can be used to express visual power, as Snellen's type or others, is to be seen in full from 4 meters, the last letter in the line D = 4 thus recognized in full. V = $^4/_4$ = 1 as a letter in list as confused V = $^4/_5$ — $^4/_6$ — $^4/_9$ — $^4/_{12}$ — $^4/_{18}$ — $^4/_{24}$ — $^4/_{36}$ — $^4/_{60}$. It is to be brought nearer in higher defects; as V = $^3/_{60}$ — $^2/_{60}$ — $^1/_{60}$, the numerator of the fraction being the distance in meters from which the test is made. At 6 meters D = 6 is last letter recognized.

The word SUFFICIENT, ranging in size from D = 24 to D = 1, is also composed of confusion letters and as a confusion word, is introduced so that the test can be as accurately made in offices that are restricted in size, as well as in large ones, the last letter being D = 1, to be tested from one (1) meter. At 6 meters S, in the word D = 24, will be called B in astigmatism higher than 1. D.

I have adopted the metric system, which is readily convertible into the English foot or French scale.

Manifest defects give more of the defect to be recognized by this test, I find, than by other or more latent conditions can be detected; a mydriatic is required to give the total defect and obtain full effect in correcting all optical defects; certain ocular conditions rendering it unnecessary or dangerous; in the correction of astigmatism there is no half-way, the whole defect must be recognized under a mydriatic.

It must be looked upon as a deformity. Especially

is this so in the cases under the second and third divisions I made in the early part of the paper; for to medical men the connection of optical defects with disease are principally interesting and useful as surgical or therapeutical means to obtain relief, the same as any other plan that might be adopted. In addition to these cases, the ophthalmic surgeon is called to treat largely the first class of cases, those with diminished power from all causes, among which optical defects have a decided prominence.

The test may be made to answer a use in studying the visual field, using the word NULLIFIED at ½ a meter, closing one eye and fixing the other eye on the centre of the word and seeing it without moving the eye, the other letters can be recognized; placing the word horizontally, vertically or obliquely to either side will enable limitations or sectoma to be made out. While the test has been devised principally for the recognition of all optical defects, being founded on a scientific basis, as all such tests are, it is accurate for the correction of such defects and for proof of work done by other accepted and necessary tests at the hands of the ophthalmic surgeon.

The presence of abnormal astigmatism, especially of a high degree, can be recognized in a case, without subjecting the patient to a visual test, or an ophthalmic examination; certain characteristic mannerisms exist.

An emmetropic eye can swing around a circle, recognize a letter c with ease; the abnormal astigmatic eye is confined to a tight-rope constraint of visual power, which not only affects his sight, but his idea of objects looked at and the impressions made in his brain; he is constantly annoyed; as a person endeavoring to catch a ball with only one finger on each hand.

The position of the head, held at an angle, depending on the position of the axes of the good or bad meridian, gives them a peculiar pose; the narrowing of the palpebral fissure of the eyelids, to compensate for the defect, mars their facial expression and produces in youth the wrinkles of old age, about the eyes and forehead. The use of opera glasses, microscopes, telescopes, do not give the satisfactory results as to the perfect eye; seeking aid by spherical glasses they find none.

The design of the material of a costume, the selection of wall paper, carpets in a home, display their characteristic sight.

When the ciliary muscle gives way in the attempt at compensation, they become sufferers from bilious headache, which a darkened room and closed eyes for a day or two relieves; not the medicine taken; they begin again; till exhaustion follows again; such cases are literally sea-sick on land, on the high sea they are not sufferers from looking at the movement of the waves, as an emmetropic eye may be; to such cases with perfect eyes a pair of strong cylindrical glasses will give comfort, as the astigmatic eye finds relief in removing their correcting glass.

That certain cases of seasickness are due to annoyance from this movement of the waves, is a fact, and the suggestion of prevention by cylindrical glasses is only made to those so affected, other causes of seasickness not being considered. A personal experience with and without correction and statements from other persons so afflicted, justifies the statement of the fact In our schools and colleges, theological seminaries and later literary life, also in the arts, astigmatism produces the greatest annoyance.

Letters and words are viewed that require a spherical eye to convey them to the retina, then to cause ideas in the brain and obtain results. Such persons work at great advantage; there is no distortion of letter, confusion of words, nor working at great odds in obtaining ideas. The astigmatic eye has its own letters and words; they are always uncomfortable, as a person translating a language with a dictionary at hand; the extra labor, uncertainty, mistakes, discouragements, often classified as stupid, render a literary life distasteful. If persisted in, health is impaired and serious lesions are produced in the eye itself. In the arts, a longer time is taken to do a given piece of work, and then not so well done.

There is no reason so potent for abolishing Greek from the schools and colleges as the inability of the astigmatic eye to recognize its characters readily, the frequency of the defect, renders it distasteful to students and a great annoyance in studying it.

The fate of a friend in scanning Homer often resulted in his teacher's saying, "sit down 'ονος,'" when he gave that word for "ωνος," and the solid contents of the book not infrequently was attracted to the master's head, as a result of the indignity to his student.

The Hebrew type in the theological seminaries, and the German type are equally as annoying. The musical score is subject to the same criticism. The Roman letter should prevail for all these languages, as that is sufficiently troublesome to an astigmatic eye, but less so than other type. German medical works are largely in Roman type, and a recent statement that 800 medical men in New York City were studying German is not to be wondered at.

I am greatly indebted to J. W. Queen & Co., of Philadelphia, Pa., for the manner in which the test has been lithographed for use by the profession.

In addition to this test, I have been using for some time an arrangement of Dr. Pray's astigmatic letters, combining them into two words under one another, PUBLIC NOTICES. It gives an opportunity to locate the good meridian quickly, and after correction of the defect, is a good proof of the correctness of the work.

The size of the lines in the letters should be D=12 or D = 9. This test has not been lithographed.

To produce a test for the near point on the plan of the test first described is not necessary, the same confusion of words after distortion of letters will be found to exist for the near as the far point. So selecting these words in the text of Snellen or others at the proper point and using the proper size, the same will be found to exist.

The effects of astigmatism are constant, and the correction of the defect requires the constant use of glasses for far and near.

DISCUSSION.

Dr. J. L. Thompson thanked the essayist for his very interesting and instructive paper, but protested against that portion of it which would dispense with a mydriatic in the examination of all anomalous refraction. He was fully convinced, after abundant proof in going over the work of others, that no man on earth has ever been able in all cases to prescribe glasses correctly without the use of a mydriatic. If he was not permitted to thoroughly examine a patient, he would not think of prescribing; but when one has thoroughly examined his patient, then he is not ashamed to have his work go before the world. He would not accept a fee in these cases unless the patient consented to this test.

Dr. D. S. Reynolds, of Louisville, Ky., said that no accurate diagnosis of astigmatism could possibly be made without the aid of a mydriatic. He had tried it in his own and many other cases, and had found no other method reliable.

Dr. S. M. Burnett—I never use a mydriatic, unless I have reason to believe there is spasm of accommodation. I am decidedly opposed to its routine employment.

Dr. E. D. Theabold, of Baltimore, Md.—I wish to enter my protest against the use of a mydriatic. We do not correct the latent, but simply the manifest anomaly, and in cases of myopia it is entirely unnecessary.

Dr. Shakespeare, of Philadelphia—I fully agree with the gentleman who first spoke as to the impossibility of correctness in many cases short of mydriasis; have astigmatism myself, and find that while I now look at the texts of the essayist, they do not lead me to his conclusions. Have examined myself before and after artificial mydriasis, and have reëxamined many others, and am fully confirmed in my belief as to the importance of this acid.

Dr. S. D. Risley—Like all of the refinements brought to our aid during the last few years, I fear that this, also, will not prove of very great practical benefit; as in my own case, while looking at the tests it does not answer expectation, so will we doubtless find when we have to deal with confused or stupid persons. Very skilful opticians constantly claim ability in this direction, and yet we see how frequently they fail in their efforts. I, therefore, declare very positively in favor of the use of a mydriatic.

Dr. L. Connor, of Detroit, Mich.—I first examine without, and afterwards with, a mydriatic; always use it where I suspect muscular spasm.

Dr. Young, of Iowa—In a majority of cases you get a different effect where a mydriatic has been used.

Dr. R. J. McKay—If the patient first looks at test types without, then with glasses, and we also examine with the ophthalmoscope, we can usually determine the astigmatism without mydriasis.

Dr. W. S. Little, in closing, said—I am a full advocate of a mydriatic, except where there is a tendency to glaucoma, or in cases where the age of the patient renders it unnecessary.

NASAL POLYPUS OCCURRING IN A PATIENT THIRTEEN YEARS OF AGE.

BY E. FLETCHER INGALS, M.D., CHICAGO, ILL.

The following case is of special interest as a contribution to the history of mucous polyps in the nose because of the patient's age.

Growths of this character are extremely rare in patients less than sixteen years of age, and the history in this case shows that the polyps were present during the patient's thirteenth year, and may have had a much earlier origin.

Miss M— at fourteen came to me from Minnesota last July, complaining of catarrh, and difficulty in breathing through the nose, which had caused her great inconvenience for twelve months.

She had been troubled with cough and considerable expectoration for eight years, and the usual symptoms had existed several years, though not so markedly as during the past year.

Upon examination of the chest, I found the râles of chronic bronchitis, with no evidence of consolidation or emphysema. The larynx was slightly congested. The naso-pharynx relaxed and bathed in secretions, but free from abnormal growths.

Anterior rhinoscopy revealed large mucous polyps nearly occluding both nares.

These growths evidently sprang from the middle meatus or external surface of the middle turbinated bone and had the characteristic appearance and feel of myxomata in this locality.

I removed them thoroughly with the steel wire écraseur and applied chromic acid to their bases. The acid was applied by means of a flat aluminium probe upon the end of which a very small quantity had been fused by gentle heat.

Chicago, August 14, 1884.

MEDICAL PROGRESS.

MEDICINE.

ON THE CAUSES OF COLORED SWEAT.—Drs. Balzer and Barthélemy have been making some recent observations upon this subject, which has of late attained importance through the micro-chemical examinations reported by various observers. They confirm more especially the observations of M. Babes, who found a particular form of microbia to be present with certain micro-chemical and spectroscopic characteristics, and who succeeded in cultivating the microbia in coagulated albumen. They give first (*Annales de Dermatologie et de Syphiligraphie*) the details of a case, where in a male subject, 34 years of age, who perspired freely at all parts, the axillary sweat alone was of a brownish, or brick red color. The hair in the armpits was of a dull reddish color and wanting in pliability, irregular in calibre, and matted together.

The parts were regularly and carefully washed and bathed with cologne water, and alkaline applications were also made, but to no effect. Sulphur, corro-

sive sublimate, borax, chloral, salicylic acid, thymic acid and carbolic acid were all in turn given a fair trial in solution, but without benefit. They were used also upon the detached hairs by maceration. Aromatic vinegar seemed to have some influence, as well as chloroform; ether had the decided effect of removing the color at the end of several days.

After noting this case carefully, these observers had several other cases of red or yellow sweat from which they made preparations of the detached hairs, which were first deprived of their fatty principles by alcohol, and then mounted in glycerine or balsam, others were subjected to the action of the various staining fluids. By the use of a moderate power they were seen to be completely invested with yellow or reddish masses, frequently separated by naked spaces, giving each hair a peculiar knotted appearance. Sometimes there was but a thin, reddish layer on the surface of the hair, with others the parasitic masses were agglomerated and superposed so as to completely hide the hair itself. Radiating striæ were seen converging towards the hair, with a glutinous amorphous substance between the striæ. On using a high power these striæ were seen to be formed by chaplets of round or elliptical micrococci presenting a yellow, brown or red color. The substance surrounding and agglutinating them seemed to be of their own exudation, and was itself colored. They were attached to the epidermic layer of the hair, and particularly at eroded points. Whilst the cortex of the hair remained intact, the parasite did not extend over much surface, but when the cortex became degenerated by maceration or by the cleavage which was produced through the parasitic masses penetrating between the layers of the hair cortex, the hair was filled throughout with them. The scrapings of the epidermis also showed them in considerable quantity, but they were not all colored red; some were colorless, and masses were seen partly colored and partly colorless, with numerous microbia of a different species.

In a general way, the red sweat seems to affect especially feeble, lymphatic, arthritic individuals, convalescents or debilitated persons. It seems to occur more frequently in red, blonde, or brownish-red subjects. Since their attention was directed to the subject they have examined a number of subjects that did not have the colored sweat, and are convinced that the parasiticism of the axillary region is very common as well in those persons who are of careful, cleanly habits as in careless, dirty persons. But this parasiticism is not always accompanied by the red color, a very feeble yellowish color, or none at all is noticed. If the parasitic masses from these persons are examined, they appear like dried gummy matter; the microbia appear to be the same, but a little yellow or colorless. The abundance of the perspiration evidently favors the multiplication of the red microbia, but it would appear that up to a certain point the coloring of these micrococci increases independent of their surroundings. M. Babes considers it possible that they are contagious.

Moreover, red sweat is not confined to the axillæ, the scrapings from the inguinal and perineal region will give similar microbia, and the hairs from these regions give the same appearance as already described. This has also been seen in the hairs from the beard of certain subjects.

As to the treatment, it is well to remember that this condition appears frequently to be the result of general fatigue or debility. It is only by studying the composition of the sweat that the conditions which favor the development of the micrococci can be arrived at, and a rational local treatment determined upon.

A Case of Dystrophia and of Spontaneous Fall of the Nails in General Progressive Paralysis.—Dr. Regis (*Gaz. Méd. de Paris* and *Jour. de Méd. de Paris*) gives a case of this affection, the characteristics of which have been before noted by MM. Joffroy and Pitres during the past two years in ataxics. Dr. Regis gives his observations in a case of general paralysis, where the nail of the left great toe was very much altered in its form, texture, and coloration, looking like the scale of an oyster shell, and was ready to drop off, only adhering slightly by the root; beneath it was a little pus, which could be made to exude on pressing down the nail. On the right side the nail of the great toe was more dystrophic, and showed clearly on its superior surface alternate transverse depressions and ridges, and in its thickness a special stratification of the lower layer which was friable and pulverulent. This nail lay upon a thin layer of pus. Soon after the nail of the left great toe detached itself spontaneously, and a month later, from a slight blow, the nail of the middle toe fell off. The sensitiveness of the tissue surrounding the nails was very much blunted. The nail of the left great toe has been reproduced, but in such a rudimentary manner as to appear abortive. The nail of the right great toe has not yet come off. The nail of the right middle toe has not been reproduced.

Dr. Regis has noted this alteration of the nails in a number of cases of general paralysis. Moreover, this lesion is not limited to the toes, as with ataxics; the nails of the fingers are also attacked. The patient has had syphilis, it is true, but these deformations belonged to the general paralysis.

MATERIA MEDICA AND THERAPEUTICS.

Direct Galvanization of the Stomach. — Dr. G. Bardet, in the *Bulletin Generale de Therapeutique*, gives us his method of employing this means of relief in cases of dilatation of the stomach accompanied with atony, and in cases of spasmodic nervous vomiting. He reports four cases, of which three were positively benefited. It seems that, while it is common to recommend the electrization of the epigastric region, the direct galvanization of the stomach by the use of special electrodes has been used but by two authorities, viz.: Perli, 1879, used this means while washing out the stomach at the same time with the stomach pump for dilatation and chronic catarrh. He used a sound ending in metallic olive-shaped extremity, and carrying a conductor in its interior, which was con-

nected with an induction apparatus. He obtained in this way vigorous contractions of the stomach, when the external conductor was placed on a level with, and a little to the left of, the ninth dorsal vertebra. Bocci, 1881, made some experiments with a gastro-electrode in the form of an œsophageal sound for the direct faradization of the internal walls of the stomach, but gave no therapeutic results. In both these instances faradization alone was used, for fear of causing eschars on the mucous membranes of the stomach.

It is evident, however, that the galvanic current would be much more to the purpose. Induced currents are very rapid, of short duration, and act but feebly upon the non-striated muscle fibres, which take time to respond to stimuli. The galvanic current excites the muscles to their maxima, and is alone capable of acting with sufficient energy to arrest the disordered contractions of these muscles.

The electrode used by Dr. Bardet consists of a rubber tube with eyes near one extremity, and a metal T tube fastened to it at the other. To one of the free arms of the metal T, which is at right angles to the œsophageal tube, a second rubber tube is attached. This tube acts as a syphon when fastened to a suitable vessel. The œsophageal tube being passed into the stomach, the electrode is passed down its interior. This electrode is made of a thin ribbon of maillechort terminating in an olive of cornuustum. The length of the electrode is calculated to pass only to the eyes of the sound, so as to insure the fact that the mucous membrane is never in contact with the conductor. A certain quantity of water is then passed through the syphon tube into the stomach, which thereby becomes distended, and the layer of fluid serves to diffuse equably the electric current over the inner surface of the organ.

As to which pole it is best to use, when it is a dilatation of the stomach that is to be treated, the negative pole would be used as producing the most active contractions; when it is vomiting and spasmodic phenomena that are to be combated, the positive pole would be the most useful. Moreover, the interrupted current would be used in dilatation, and the continued current in the other forms.

The intensity of the current in the case in which it was used by Bardet was from 15 to 25 milli-amperes, and continued from five to ten minutes. The pole which is intended to close the circuit may be held in the hand in cases of vomiting, or, in cases of dilatation, may be placed over the epigastrium attached to a broad plate of steel covered with a moist piece of chamois skin.

When the electrode is removed the liquid must also be removed from the syphon before the œsophageal tube is taken away. During the application the patient feels the energetic contractions of the stomach, which may also be felt through the walls of the abdomen on using the hand. The method causes very little pain, and can be readily used on those patients who are accustomed to having the stomach washed out by the syphon tube.

SURGERY.

THE MODES OF PRESERVING SPECIMENS FOR MICROSCOPICAL EXAMINATION.—Prof. Cornil, while complaining (*Archives de Médecine Navale*) that many valuable specimens have been totally ruined, which were sent to him for examination in his pathological laboratory, on account of a want of proper precautions for their preservation, gives some clear rules to guard against these accidents. The reasons why these specimens were spoiled, are as follows: sometimes they were already decomposed when put into a preservative fluid; others were two large for the small amount of the preservative. Valuable spinal cords have been sent twisted up in cork-screw shape in phials containing enough alcohol simply to harden the surface, while the interior softens and decomposes. For a given specimen, the fluid which suits it best should be selected. It is often impossible to examine the most interesting parts of a specimen because a hardening reagent has not been used sufficiently early. Sometimes a brain or cord came which had been for several days or weeks in a very strong solution of chromic acid, the surface was burnt, while the interior was decomposed. Sometimes a tube is sent, supposed to contain a particular kind of bacteria, and collected without any precautions, naturally only the bacteria of putrefaction would be found. Often a big-bellied vessel is sent, with a narrow neck, through which the specimens had to be squeezed, and of course misshapen, to be inserted, and which, being filled with all sorts of specimens, had to be broken to extract them.

1. A specimen is in its best condition when taken from a living body, or as soon as possible after death, and placed immediately in an appropriate liquid. Fresh tissues taken either after an operation or during an autopsy, present a cohesion which is rapidly lost when the blood and other fluids have left them, and the cadaveric decomposition has commenced. So it is necessary to place them at once in a preservative or hardening fluid, particularly if one wishes to study the delicate modifications of the cells, or to search for the pathogenic bacteria.

2. Specimens removed in surgical operations. Portions of the tumor or member removed, should be cut into fragments that are very small in comparison with the amount of liquid into which they are to be placed. The amount of fluid should be generally twenty times as great as the size of the specimen to be placed in it. If it be simply to determine the nature of a fleshy tumor (epithelioma, carcinoma, sarcoma, myxoma, myoma, etc.) the razor or bistoury is used to detach from the centre, and from one or two points on the periphery, two or three cubes of about 1 cubic centimeter in size, washed well in distilled water, if bloody, and placed in alcohol of 80° to 90°, suspended in a vessel that will hold about 50 grs. of alcohol, with a large mouth closed by a ground glass stopper or a metal cover. Instead of suspending the specimens, they may lie upon a bed of tow at the bottom of the vessel. Cork stoppers, besides closing the vessel imperfectly, have the inconvenience of growing a mold upon their inner sur-

face; if it is necessary to use them, dip their lower portions in paraffine and seal them with wax.

To study the indirect multiplication of cells [kario-kinesis) in tumors or alterations of the skin, after selecting a part which is supposed to be in active development, it is placed immediately in absolute alcohol or in a solution of chromic acid 2–1000. Ten minutes or a quarter of an hour after the removal of the tumor would be too late. To separate the elements of a tumor, a fragment of about 2 cubic millimeters should be placed in a vessel of 30 gr., containing 2 parts of distilled water to 1 part of alcohol at 90°. The fluid should be renewed in 24 hours, if the examination is not made.

To preserve all the blood contained in vessels, or in cavernous tissue, as in an angioma, Müller's fluid should be used (20 gr. bichromate of potass., 10 gr. sulph. sod., to a litre of distilled water).

If the tumor is small, the whole of it is put in without opening it, or a lobule, if it is too voluminous. The quantity of liquid used should be twenty times greater than the volume of the specimen. To study nerves taken from a tumor, a sarcoma or myxoma of the nerves, or in the amputation of a limb, etc., a thin shred of nerve, about 1 to 3 centimeters long, should be removed by the scissors, fixed at its two ends and placed in a groove on a small splinter of wood, a match, for example, which is to be inserted in a glass tube containing a 1 per cent. solution of osmic acid. The subcutaneous painful tumors which are supposed to contain nerves, are also put in the same solution of osmic acid, the fragments must be small enough to allow the solution to penetrate into their interior, and should not be more than 2 millimeters thick, and 6 or 7 millimeters long. After remaining 24 hours in five times their volume of osmic acid, they are to be washed with distilled water and put in absolute alcohol.

To preserve the specimens for examination with the naked eye, a temperature of 32° to 46° F. will keep them for several days without change. Otherwise, chloral in solution of 10 p. 100, preserves very well the appearance and color of the parts; the liquid should be renewed if it becomes muddy, and the specimen should be suspended in ten times its own volume of the solution.

Alcohol is the best preservative; to use it properly, the specimen should be washed for 24 hours, in a large vessel where a current is established from the bottom by rubber glass tubing, and then placed in alcohol, so as to be bathed by it at every portion, the dissected or isolated parts to be suspended by threads from glass rods. Another way is to wash the specimen quickly, then place it in half alcohol, half water for two or three days, and then to put it in alcohol of 80° or 90°. The advantage of the alcohol is that it allows of an ulterior microscopic examination, which other liquids do not. But whatever means are employed, the specimen will lose its color and become blanched.

3. To obtain the bacteria from a liquid (purulent discharge from the genital organs, pus, sputa, fluid of cutaneous eruptions, leprosy, variola, etc., liquid of thoracentesis, abdominal punctures, etc.), a very clean bistoury should be taken, which has been washed in alcohol and heated in a flame, on the point of which a drop of the liquid is taken up and spread upon a thin layer of glass, which has been washed with water and with alcohol and dried with care. This is covered with a similar piece of glass, which has been treated in the same way, and the delicate layer of fluid will dry rapidly, they are then wrapped in paper. They can be kept one or two days before being used. The blood obtained by pricking the finger after a careful washing with soap, and then with alcohol, can be prepared in the same manner, only to preserve the red blood globules, the glass must be exposed for a quarter of an hour in a moist chamber to the vapors of osmic acid. As the urine dries very slowly, owing to the hygrometricity of its salts, a very small quantity should be taken and dried over the lamp flame. The meatus must be washed with care, and the material taken during micturition. With women it is nearly always mixed with the secretion of the vulva and vagina.

Twenty-four or thirty hours after death in summer it is useless to search for bacteria; but if the cadaver has remained at a temperature of 32° to 46° F., at the end of twenty-four hours they can still be found, and prepared as above, in, for example, the fibrinous exudation of serous inflammations, pneumonia, the scrapings of the liver, the kidneys, lymphatic ganglia, the pultaceous fragments or soft vegetations of rheumatismal or ulcerated endocarditis, the pus from the abscesses of internal organs, the contents of tuberculous cavities, of syphilitic gummata, the intestinal fluid, the surface or bases of ulcerations of typhoid fever or dysentery, the contents of the articulations in arthritis, etc. etc.

In looking for bacteria in tissue sections, they should be taken from the living body, as a small portion of the skin or subcutaneous cellulc–adipose tissue detached from the border of an incision made in opening an abscess, or a minute section made with the patient's consent, from a tubercle of leprosy or lupus, or in erysipelas, etc. These fragments of one or two millimetres in thickness by 8 or 10 inches in length, are placed at once in a phial containing alcohol at 90°, which is the best for them, although it contracts them a little and reduces their dimensions.

4. Precautions recommended for certain organs and tissues particularly. *Skin.* As many of the cutaneous eruptions blanch out after death, so as to be no longer recognizable (spots of typhoid fever, erythemata, superficial papules, etc.) it is well to mark them before death, with aniline or nitrate of silver. The parts so marked to be taken as soon as possible and put in alcohol, Müller's fluid, or osmic acid.

Nervous System. Bichromate of ammonia 2–4 p. c., sections to be made carefully. In tuberculous meningitis, two convolutions with the pia mater covering them undisturbed may be placed in alcohol. Very small fragments of the brain and cord may be put in osmic acid to study fatty degeneration.

The reagents mentioned are all useful in preserving the various parts of the body in a simple manner, as to the *Eye*, to preserve the retina, osmic acid should be injected as soon as possible by a fine (Pravaz)

syringe, through the sclerotic into the vitreous humor, twenty-four hours later the globe is to be cut through and placed in distilled water for an hour and then put into alcohol. This can be done after the surgical enucleation of a diseased eye; or it can be placed whole in Müller's solution, taking care first to prick the sclerotic in several places to allow the preservative fluid to penetrate into the interior.

PERFORATING WOUND OF THE HEART.—J. Landborg (*Nordiskt Medicinskt Arkiv*) gives the case of a man 53 years of age who had been an inmate for six years of an asylum while suffering from dementia. During that time he had satisfactory general health and a good appetite, until finally he took to his bed, refused food, but drank a good deal, seemed very weak, but did not complain of anything, perspired excessively, nothing abnormal about the thorax, heart sounds normal, pulse full and regular. He died within three days.

At the autopsy the folds of the pericardium were found to be agglutinated by strong trabecular adhesions. In the muscle fibres of the heart, posteriorly and 1.5 cm—above the apex there was a sail-maker's needle, penetrating through the walls of the left ventricle, with the head entirely within the cavity. It had formed about itself, on the walls of the heart, an infundibuliform opening, circular on the surface, with a diameter of 1 cm. Corresponding with this opening was one in the parietal pericardium, following which a canal was found passing beyond the pericardium and the diaphragm to the left lobe of the liver and the wall of the stomach, these organs were all adherent each to the other. When the parts were in situ and the needle in its original position, its point was free in the stomach; and so closely adherent was it to the tissues, that no fluid could be made to penetrate the intermediate space. In spaces where the point of the needle could reach the opposite side of the stomach, the mucous membrane was slightly scratched with traces of injection. No hæmorrhage. The needle was 9 cm long, triangular, and rusty in its superior portion, a part of the eye of the needle still remained.

OBSTETRICS AND GYNÆCOLOGY.

ON NON-BLENORRHAGIC VAGINITIS.—Dr. Martineau has published his views on this subject at some length, a review of which is to be found in the *Archives de Tocologie*. As to the structure of the vagina, he does not admit the presence of glands, and limits his study to the constitutional and non-constitutional forms of vaginitis. Constitutional vaginitis develops suddenly, or consecutive to an irritation. It may be under the influence of a gouty, scrofulous, herpetic, or dartrous constitution, of which the author has observed about thirty cases. It may exist alone, which is rare, with metritis, or with constitutional vulvitis, which is more common. With herpetic vaginitis generally the cutaneous system is also involved by the same disease.

The secondary constitutional vaginitis is quite frequent, and results from menstruation, pregnancy, labor, metritis, traumatism, masturbation, coitus, horseback exercise, and the frequent introduction into the vagina of pessaries, injection pipes, etc. The symptoms vary according as the vaginitis is acute or chronic, constitutional or non-constitutional. When acute it commences with a sensation of heat and dryness of the vaginal mucous membrane; then follows a secretion, which passes by degrees from a mucous, colorless character to a white, purulent and even greenish character. The quantity is variable. The secretion is but the product of a simple exudation, an exfoliation of the most superficial layer of the mucous membrane. The microscope shows numerous globules of pus, a considerable quantity of epithelial cells, the *trichomonas vaginalis*, and a certain number of algæ and vibriones.

Later, the pain increases and irradiates through the pelvis, the vulva become red and inflamed, but there is no *urethritis*. Finally, there may be inflammation even to suppuration of the perivaginal and inguinal ganglia. The touch, which is painful, encounters the folds of the vagina, prominent, rugous, and covered with granulations. The speculum when introduced causes a slight bleeding from the inflamed surfaces, and passes in with some little difficulty. It exposes the intense redness of the mucous membrane, which is covered by a layer of pus. The cervix uteri partakes of the inflammation, and presents erosions, which, however, do not pass into the interior of the neck. The granulations are due to an hypertrophy of the normal papillæ, and not to any glands. Constitutional vaginitis, on the other hand, is rarely acute, and Dr. Martineau recognizes several varieties:

1. Scrofulous vaginitis, which may or not be granular. It is characterized by a discharge that is rather sero-purulent than purulent, and by the presence of disseminated small vesicles, situated either lineally on one or all parts of the walls (herpes), or grouped in small patches which are slightly prominent and irregular in form (eczema), not confined to the vagina, but also present on the cervix uteri.

2. Arthritic vaginitis, which is characterized by an intense redness, almost the color of urine lees, of the vaginal mucous membrane. Its progress is irregular, its duration prolonged, it is subject to relapses, which seem to be dependent upon the variations of temperature, the humidity of the atmosphere, and sudden cold. It is coincident with other evidences of arthriticism, as muscular and articular pains, neuralgia, etc.

3. Dartrous vaginitis. This is accompanied by vulvar-lumbo-abdominal neuralgia and crural neuralgia, the vulvar hyperæsthesia may become true vulvism with contraction. (?) The herpetic and eczematous eruptions are numerous, and are generalized on the vulva, vagina and cervix uteri. They coincide with morbid manifestations of the same nature, either on the external integument or in connection with the viscera.

The diagnosis comprises the diagnosis of the lesion, or anatomical diagnosis, of the cause or pathogenic diagnosis, and of the nature of the affection or nosological diagnosis.

Dr. Martineau insists particularly on the different characters of the discharges from the vagina, uterus and vulva.

THE

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PUBLISHED WEEKLY.

The Editor of this Journal would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, AUGUST 23, 1884.

Treatment of Epidemic Cholera by Large Hypodermic Injections or Infiltrations.—A few weeks since we published a brief communication from Dr. S. S. Todd, of Kansas City, Missouri, proposing to treat cases of epidemic cholera largely by injections of considerable quantities of whisky and water into the subcutaneous areolar tissues, with the expectation that it would be taken up fast enough to prevent the blood from becoming too much exhausted of its water and saline elements by the copious gastric and intestinal evacuations which accompany the active stage of the disease.

In the present number we give place to a letter from Dr. Uhler, of Baltimore, touching the same subject. He commends the object sought to be accomplished by Dr. Todd, but thinks that the direct injection, by large hypodermic syringe, of sufficient fluid for the purpose, would rupture the subcutaneous areolar tissue and lead to extensive suppuration. To obviate this he suggests a method by which the fluid could be more slowly and continuously introduced into the tissues or directly into the cavity of the peritonæum, from which it would be rapidly absorbed by the peritoneal membrane.

All these suggestions are founded on the assumption that the chief danger from cholera is in the loss of the water and salts of the blood, leaving that fluid too viscid to circulate; and that a supply of these elements as fast as they are lost would result in curing the disease.

Our own clinical experience with cholera, suggests that there would be much practical difficulty in carrying out the propositions of either Drs. Todd or Uhler. To inject hypodermically from 60 to 120 cubic centimeters (fl. ʒii to ʒiv) of any kind of liquid directly into the areolar tissue of an extremity, and repeat it often enough to make any adequate offset to the quantity being discharged from the mucous membranes in the active stage of cholera, would necessarily rupture and disorganize that tissue, as stated by Dr. Uhler. And to keep four or more hypodermic syringe points constantly inserted and connected by rubber tubing with a fountain containing the liquid to be infiltrated into the tissue, as proposed by Dr. Uhler, while the patient is vomiting, purging, and writhing under the muscular cramps every five or ten minutes, would require more fortitude and patience in preserving one position, than I have ever seen in persons in the active stage of this disease.

If we wait until the patient gets quiet enough to keep Dr. Uhler's apparatus adjusted, continuously, it will be when he is in so profound a collapse that the capillaries will fail to take up the infiltrated liquid. What effect the injection of water, or medicated water, into the peritoneal cavity during the progress of a case of cholera, would have, can be determined only by trial. We apprehend, however, that all these expedients, even if carried into practical effect, would lead to the same result as has been found to follow the direct injection of various diluent liquids into the veins, namely, a temporary improvement of the circulation, followed shortly by renewal of intestinal discharges and return of the collapse. The truth is, that the rapid drainage of the serous fluids of the blood and tissues is simply an *effect* resulting from the inversion of the natural action of the mucous membrane of the alimentary canal; and until this inverted action is reversed, the mere supply of water or any artificial serum, whether it be by hypodermic infiltrations, venous injections, or injections into the peritoneal cavity, will only furnish additional material for discharges, without otherwise altering the progress or final termination of the case.

Morphine in the Early Stages of Insanity.—The responsibility of the physician in the use of morphia, in consequence of the possible development of the morphia habit, is great; but his responsibility relative to the possible disaster of a preventable life-long insanity, not prevented, is, if possible, still greater.

Auguste Voisin,[1] of the *Salpètrière*, Paris, claims

[1] Leçons Clinique sur les Maladies Mentales, etc., Paris, 1883.

for the use of the hydrochlorate of morphia, in gradually increased large doses long maintained, remarkable results in the treatment of certain forms of insanity. His theories are well sustained by physiological observations, and his cases are taken from the records of the *Salpètrière* and private practice, and many of the cases have been examined after the lapse of several years.

In the article referred to, "Leçon Trentième," he gives a resumé of the history of the systematic use of opium and morphia in the treatment of insanity, and dates his own experience with it from the year 1867. His success was at first greatly diminished by the obstinate vomiting which frequently occurs; but on learning from M. Roller, Physician of the Insane Asylum at Illenau, France, that, regardless of the vomiting, the dose should be increased, he continued to increase the dose, and to that instruction he attributes his success. He has since treated successfully the various manifestations of insanity which would seem to correspond practically to the first division adopted by the International Congress of Alienists in 1867, namely: simple insanity, comprehending mania, melancholia, monomania, circular insanity, moral insanity, in their early manifestations.

He uses exclusively the hydrochlorate of morphia, and only hypodermically, but fails to give the strength of the solution which he finds most satisfactory. He does not mention the combination, so much appreciated in America, of morphia and atropia. Probably the association of the atropia is not to be desired. He speaks against the tablets in use, and especially objects to warm water as a vehicle. The efficacious dose desirable to sustain until the desired effect is obtained, can only be found by proceeding cautiously and studying each individual apart. One rule which the author never departs from, is not to exceed, in the initial dose, from one to three milligrammes. Whilst light cases associated with hallucinations are frequently relieved in a few days with a daily dose of from five to six centigrammes, yet in other cases the dose has to be increased to seventy centigrammes. He narrates one case in which two grammes of the hydrochlorate of morphia, in two doses, were administered daily, with no manifestation of its presence beyond a contraction of the pupils. The latter was one of the unsuccessful cases. He never entrusts the administration to a nurse.

The influence of the medicine exhibits itself in the order of their appearance by a redness of the face and conjunctivæ, nausea, vomiting, general sensation of heat, lassitude, sleep, loss of weight, diminution of arterial tension; later, an improvement of the countenance is manifest, the face becomes more intelligent and the tint of the flesh improves, the general weight now increases, and in women, the courses reappear. The manifestation of any of these symptoms supports a favorable prognosis, whilst their absence is unfavorable. Where there is great emaciation, previous to the commencement of the morphine treatment the author practices transfusion. The presence of a congested condition of the cerebro-spinal system he considers an absolute contra-indication for the use of morphia. Consequently in some cases he first applies blisters to the nape of the neck or other convenient regions, and regards its use as absolutely contra-indicated in epilepsy, general paralysis, and insanity due to an atheromatous condition of the arteries.

He mentions three phenomena which he considers of importance in pronouncing an opinion relative to the cure of the patient: The consciousness of their former condition, the recollection of their delirium, and a sense of gratitude towards those from whom the relief was obtained.

Judging from a purely theoretical point of view we should say that the plan of treatment is eminently philosophic. It is not at all unreasonable to suppose that many such cases may arise from an exaggerated form of ordinary sadness, suspicion, or diluted but universal pain, associated it may be with a condition of body incapable of throwing off the superimposed incubus. Let us suppose, for instance, that the pain associated with a severe felon, a toothache or earache, instead of being confined to one place, disseminated over the whole body so that the sufferer cannot locate his seat of pain; the pain would not necessarily be the less because it was thus distributed, the patient would, however, be very much less likely to obtain relief from the physician; and we have only to suppose that general feeling increased and unrelieved to disturb the equilibrium of the best of us. If, as we are led to suppose by Auguste Voisin, the arterial tension is constantly increased in the initial stages of insanity, it would not be unreasonable to suppose that in such cases some such universal agent is at work, and from our experience with morphia as a magic power in the relief of other affections of a painful, ease-disturbing nature, we ought to expect it to be equally efficient, at any rate in certain cases of insanity, arising apparently from an ill-defined but universal pain, whether physical or moral.

Such a method of treatment offers special advantages in the possibility of saving a patient from being sent to a retreat, which is sufficient in itself, in many

cases, to develop a spirit of resentment which would add to the chances of a relapse. As to the possibility of developing the morphia habit, it would be very injudicious to ignore it; but in urgent cases risks have to be taken, and by following the example of Auguste Voisin in allowing the remedy to be administered by the physician alone, the danger is reduced to a minimum.

PROGRESS OF CHOLERA IN EUROPE.—While the epidemic in Toulon and Marseilles is diminishing, apparently for want of material to feed it, it is steadily extending to other parts. A dispatch of the 16th inst. says:

"There are now forty-one places and thirteen departments in France from which deaths from the cholera have been reported, and there are doubtless half as many more towns and villages from which no reports have reached the world outside. The cholera area now stretches from Toulouse, in the southwest, to Auxerre, in the north, in the department of Yonne, and to the gap in the southeast in the Haute Alps, thus making a triangle whose sides are respectively 235, 245, and 310 miles long. Auxerre is only about 100 miles from Paris in a southerly direction."

It also exists in many places in northern Italy, and in the Nostras prison at Geneva, Switzerland.

What is called *English Cholera*, has been for some time prevailing with considerable severity in Northampton and neighboring villages, in England.

INTERNATIONAL MEDICAL CONGRESS AT COPENHAGEN.—This body closed its session according to programme on the 16th inst. The number of members present is stated at about 1,600, of whom about fifty were from this country.

SUPPOSED DUPLICATES OF JULY 19, 1884.—If there are any of our readers who still think they have received *two* copies of the JOURNAL for July 19, Vol. III, No. 3, and no copy for July 26, Vol. III, No. 4, let them compare the supposed duplicate numbers by examining the date and number at the top of the first inside page of reading matter, as well as the contents of the two copies, and they will find that they have both numbers *three* and *four*, the latter only being wrongly dated and numbered on the front outside page.

INTERNATIONAL MEDICAL CONGRESS.—A dispatch from Copenhagen of the 13th inst., stated that Dr. J. S. Billings, of U. S. A., and delegate from the American Medical Association, had presented to the Congress there assembled an invitation to hold the next triennial session in this country in 1887. If the invitation is accepted, those who attend will meet a cordial reception from the profession in this country.

SOCIETY PROCEEDINGS.

GYNÆCOLOGICAL SOCIETY OF BOSTON, MASS.

The Society met for its regular February meeting, H. O. Marcy, M.D., President, in the chair, and H. G. Harriman, M.D., Assistant Secretary.

Dr. Marcy again thanked the Society for the recent honor of his unanimous election to the chair. He realized the responsibilities of the position, but had concluded to accept it, although full of zeal for the greatest good of the Society, because he believed, after all, that the effective work must still be done by the "rank and file." In the year to come he would use his efforts to advance every interest of the organization, and render it an aggressive force both at home and abroad.

Frank S. Billings, M.D., associate member, then read the paper of the day, upon "Eclampsia Parturientium in Woman and in the Cow," of which a digest follows:

As respects etiology, eclampsia is the most theoretical of all diseases. Derivatively speaking, the term is applicable to but a single one of the many phenomena which it is made to cover. Usage has also restricted its application to such phenomena occurring in woman during the *puerperium;* but, in reality, it equally applies to similar conditions occurring in scarlatina, diphtheria, etc. Convulsions in parturition would be a better designation than eclampsia.

Eclampsia is not a disease; rather it is a symptom of a diseased condition of the organism. It represents a result, the outward visible phenomena by which certain internal disturbances manifest themselves to the observer.

Definition.—Other medical men agree more fully regarding the nature of the disease than do veterinarians. Frank alone, among veterinary writers, looks upon the accident commonly called milk fever, calving fever, collapse, etc., as identical with eclampsia in woman. He defines to the following effect: An acute and very dangerous disease in cows, especially common in the great milk-producing breeds, characterized by unconsciousness, paralysis, and sometimes convulsions, due to uræmia of the brain.

The reason why convulsions are not so frequent and so severe in the cow as in woman, is that the degree of nervous irritability in the bovine species is much lower.

Eclampsia in woman Spiegelberg defines as epileptoid convulsions of a tonic, or, more especially, of a clonic character, which appear during the puerperium, accompanied by unconsciousness and coma. Nothnagel regards it as an acute epilepsia. Wernich connects it with injury done to the ischiatic nerve, by the uterus, which produces excitability to the pons and the medulla oblongata. If to this assumed injury be added irritation of the nerves of the general system, eclampsia results.

The reader next gave a full exposition of the cause and phenomena of this disease, in woman and in the cow, of which the following is a brief *resumè:*

In woman the affection is essentially one of parturition, but it may occur in other diseases. Eclampsia in animals is almost entirely limited to parturition —being even more restricted than in woman—but seldom occurs even then in other animals than the cow. Prodromal phenomena are present in woman, and probably also in animals. Amaurosis is a constant attendant in both; œdema of face and extremities present in woman, but not in animals; convulsions frequent in woman, infrequent in animals; pulse and respiration similarly affected in both; temperature increased in woman, decreased in animals; bladder contains little urine in both. Secretion of milk either diminishes or ceases altogether in animals; nothing reported in regard to woman In animals we find complete paralysis of digestive tract, cessation of defecation, and dessication of the fæces. Tympanitis present in cows.

Etiology.—The only two theories worthy our present recognition are, 1st, the Traube-Rosenberg theory, to the effect that eclampsia is due to œdema cerebri and the sequential anæmia; 2nd, that it is due to intoxication of the blood with the entire elements of the organism which go to make up the urine.

Objections to the T.-R. theory are numerous. Convulsions occurring in scarlatina, diphtheria, etc., are *not* due to œdema cerebri, but *are* due to nephritis and to consequent retention of elements in the blood. Still, all cases of nephritis and retention of elements of urine in the blood are not followed by eclampsia; therefore an unknown something must be involved in the production of the disease besides urine-intoxication. This something may be prolonged action on the nervous elements, or sudden and intense action. According to the urine-intoxication theory, the blood-intoxication is not due to retention of urates alone, but of all the elements of the urine. The semi-paralyzed condition of the muscles of respiration doubtless aids this toxic influence of the urine by interfering with the oxidation of the blood.

Spiegelberg, Cohnheim, *et cet.*, were quoted in support of this latter theory.

There are many predisposing and supporting circumstances connected with the procurement of eclampsia in the cow. Nephritis, which is so frequent an antecedent in woman, is not often present in the cow.

The disease is always associated with a quick and easy parturition, and the contraction of the uterus is speedy and prompt. Eclampsia seldom comes on before the delivery of the secundines.

It appears to belong especially to the great milk-producing breeds, and is, essentially, a product of refinement in breeding. Over-feeding and an over-fat condition of fine-bred cows predisposes to the evil. It seldom occurs during the first or second parturition, and diminishes in frequency after the seventh or eighth; it therefore appears most frequently at the height of milk production.

In conclusion, the reader gave his own opinion respecting the etiology of the disease in effect as follows: Eclampsia parturientium is due, 1st, to a peculiar irritability of the uteral plexus, producing a neurosis which acts, 2nd, upon the arterial circulation, especially in the kidneys, causing retention of urine-elements in the blood and tissues; to which may be added the statement that anæmia cerebri may be due to the same reflex irritation which causes contraction of the renal arterioles.

After the reading of the paper, the chair suggested that the discussion which was to follow might very profitably be directed towards the treatment of eclampsia, as the reader, from lack of time, had not considered this department of the subject.

In reply to question, Dr. Billings said he did not know whether paralysis of the bowels existed in women as it does in cows. Cows are purged at once, and other efforts made at elimination.

Dr. Warner asked if cessation of defecation was due to paralysis or to spasm. Reply—It is certainly due to paralysis.

Dr. M. L. Brown thought purging was striking at an effect rather than at a cause, and that something calculated to allay nervous irritability, chloral hydr , e. g., would be better. Morph. sulph., in large doses, (gr. ss., gr. ij.,) would fill the same indication. Army service taught him that pressure on both carotids would sometimes control convulsions.

Dr. Billings, in reply to question, said that chloral hydr. was not used with cows. Physostigmine, (8–10 grs.) had been used, in conjunction with enemata, hot blankets, etc. Blood-letting has been abandoned.

Dr. Wheeler had not noticed cessation of milk in woman, as patient is either dead or relieved before milk appears. Neither had he observed arrest of defecation in woman, but was accustomed to purge both in order to eliminate and deplete.

Dr. Grainger had not observed intestinal paralysis in woman, and thought it would have been noticed if it were present.

Dr. Billings rejoined that stagnation of peristalsis in cattle came on suddenly. The last operation of the bowels previous to eclampsia may have been normal; as soon as the attack supervenes, the bowels are wholly paralyzed and the fæces rapidly become dessicated.

Dr. Grainger would not trust to chloral hydr., had tried it and failed. Had successfully tried venesection, with pilocarpin hypodermically.

Dr. Billings believed venesection to be generally of little value; if used at all it should be resorted to in the beginning of the attack, and should bleed freely.

Dr. Marcy had used pilocarpin with varying success, but was not satisfied with it. In his last case, had found fatty degeneration of capillaries of kidneys. Venesection was advisable in certain cases. Had lately seen a case where a history of albuminuria for several months was followed by normal labor.

Dr. Wheeler thought we should recognize two types of the disease, and these should receive different treatment. One, the sthenic, found in patients who are strong, full-blooded and robust, with tendency to apoplectic symptoms. The other type is presented by the anæmic and nervous. In the former class, venesection should be used, followed by morphia or ether; with the latter, venesection is contraindicated, and ether, morphia, etc., must be our chief depend-

ence. In reply to a question of Dr. Horace White, Dr. Wheeler farther said he did not think pilocarpin would deplete quickly enough in some cases, in which venesection, quite likely, would work much better.

Dr. Grainger mentioned a case of albuminuria where the urine was nearly solid on boiling, patient had moreover spots before the eyes, ringing in the ears, etc., etc. The labor was normal. Venesection in proper cases should be resorted to very early, and the patient bled rapidly, in sitting posture, so as to affect the brain at once.

Dr. Church thought the presence of albumen not particularly dangerous if the amount of urine be not diminished; if, however, the urine be both scanty and albuminous, labor should be induced.

Dr. M. L. Brown had used veratrum viride with good results. As soon as the pulse reached the normal, convulsions ceased, though in one case delivery did not take place till 24 hours afterwards. But veratrum viride is not applicable to all cases, as it is not rapid enough in its action.

Dr. Wheeler had found the uterus firmly contracted after delivery in cases complicated with eclampsia. Dr. Billings did not know of any epidemic form of the disease among animals.

Jas. R. McLaughlin, V.S., of Newton, being present by invitation, was asked by the Chair to give the results of his observation upon the subject before the Society. The doctor replied that the veterinarian generally labored under the disadvantage of being called to the case late, and after the animal had been down some hours. His chief effort in treatment was in the direction of elimination, and this by the bowels, which were, of all organs, the most susceptible to impression in the cow. Gave strong cathartics, as a very positive form of constipation is always present; also employed hot applications to the loins, in neighborhood of kidneys—cloths wrung out of hot water and confined with rubber cloth to prevent evaporation, also frequently gave warm ale, in Oss. doses, repeated every four hours. The majority of cases die, and when recovery does take place, it is a question with many of the profession whether the actual disease were present, and not rather a hysterical sophistication of it. In one case with favorable issue, the animal had right afterwards a well-marked case of pneumonia, but finally recovered from this also. She was a rich milker—milk like cream. A year previous to the seizure, he had treated her for œdematous swellings all over the pendent portions of the body, legs, udder, etc.; when she came to have her first calf it was complicated by the experience just related.

The doctor further remarked he had made a number of post-mortems but never found anything calculated to throw light either on the nature of the disease or its treatment. Confinement in cellars seems to predispose to eclampsia; had lately been consulted in case of a valuable cow owned by a wealthy family, which had had successive seizures on occasions of previous calvings; advised to remove her from the cellar in which she was kept, and to build a proper barn. Also pursued depletory measures, ordered a regulation of exercise, and when she came to have her calf all proceeded well and without complication. "The poor man's cow," added Dr. M., "like the poor man's wife, generally gets on well and escapes the disease."

At the close of the discussion, Dr. Billings called attention to, and presented sample copies of, the "*Journ. of Compar. Medicine and Surgery*," of which he is one of the editors. The doctor also recommended a soap consisting of Bals. Peru 20 per cent. powd. Castile soap, 8 per cent., as having proved effectual in the relief of eczema, dandruff, leucorrhœa; also effective in removing offensive odors from the hands. Great difficulty is experienced in making these ingredients unite, but it can be accomplished. Dr. B. recommended the following for the disguise of the smell of iodoform:

℞ Iodoform.....gr. ci.
Acid Carbolic .....gr. ij.
Ol. Menth. Pip .....gtt. v—x.

Society adjourned.

CHICAGO MEDICAL SOCIETY.

Regular meeting August 4, 1884, Dr. D. A. K. Steele, President, in the chair, and Dr. L. H. Montgomery, Secretary. After the preliminary business, the remainder of the evening was occupied in the consideration of epidemic cholera. Dr. J. H. Etheridge read a brief paper enumerating the various remedies that had been proposed and used in the several cholera epidemics of the past 60 years. He did not discuss the *modus operandi* or the therapeutic value of any of the remedies, but simply gave a catalogue of such as had been suggested and used to some extent during each successive epidemic. The list embraced nearly 130 articles, among which were some of the most active in the materia medica, as calomel, opium, venesection, cathartics and emetics, and many that were entirely inert. He was followed by Dr. I. N. Danforth, who gave an interesting account of the pathological changes or morbid anatomy of cholera patients, illustrated by micro-photographic representations of the mucous membrane of the ilium as shown by post-mortem examination of persons dying of cholera in 1873; also, similar illustrations of the constituents of the matters vomited and passed from the bowels before death. His examinations showed the uniform presence of three pathological conditions as the result of fatal attacks of epidemic cholera, *i. e.*, great loss of the water and saline constituents of the blood, leaving it too thick to circulate freely through the capillaries and smaller vessels; an abundance of epithelium cells and several varieties of microbes in the intestinal evacuations; and extensive denudation of the villi and other parts of the mucous membrane from the detachment of the epithelium during the active stage of the disease. In nearly all the cases, the cortical structure of the kidney was also much congested, and the secretion of urine scanty or suppressed.

Dr. W. T. Belfield gave a brief account of the investigations of Dr. Koch in regard to the cholera bacillus. He regards it as not yet demonstrated that

said bacillus is the efficient cause of the cholera pestilence.

The discussion was continued by Dr. John Bartlett, who had in former years devoted much time to the investigation of the organic germs or fungi supposed to constitute the active constituent of malaria; Dr. C. G. Smith, Dr. C. W. Earle, and Dr. N. S. Davis. The latter, in addition to some reminiscences of the several cholera epidemics in this city from 1849 to the present time, gave briefly his views of the pathology and the method of treatment he had found most efficient in controlling the progress of the disease. At a late hour the society adjourned, with the intention of resuming the discussion at the next regular meeting.

MASSACHUSETTS MEDICAL SOCIETY.—PROCEEDINGS OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.—ADJOURNED SPECIAL MEETING.

Section for Clinical Medicine, Pathology, and Hygiene.

ALBERT N. BLODGETT, M.D., SECRETARY.

(*Concluded.*)

The enormous dilution of sewage in this country is mentioned as an objection. By analyses the amount of organic matter in the sewage of American and European cities varies but a trifle. Boston consumes more water per capita than Paris. But the latter city dilutes her sewage equal to that of our own by a lavish use of water in washing the streets each morning. And the estimate of three barrels of water to the discharge of one individual here does not include the organic matter constantly discharged from sink drains or the street washings. Durand-Claye, the celebrated French engineer, to whom the world owes a debt of gratitude for demonstrating the possibility of epuration by this method, says, "It is desirable and necessary that there should be a great dilution by water in order to insure rapid transit."[1]

The soil does not clog where systematic irrigation is practiced. The thin skin of impervious deposit, when dried, shrinks, cracks, and breaks up, the organic matter decays, and the soil is more pervious than where irrigation is not employed. Reservoirs of deposit are used to eliminate the coarse particles, as their decay on the surface would cause an offensive odor.

It is highly probable that the failure mentioned as resulting from an impervious deposit where "sewage was pumped on a garden," was due to puddling. And that it is an unnecessary accompaniment to irrigation is proved by the employment of this system at Buntzlau on fifteen hectares for over two and a half centuries, and at Edinburgh for over two centuries, without diminishing the permeability of the soil.

As to the impossibility of obtaining suitable soil of sufficient area in Massachusetts for the general employment of this system, the success which has attended the efforts of the English in finding it in their thickly populated island is an answer. Our forests could be utilized with little expense, and next to Italian rye grass the trees would prove the best absorbers of filth. A few acres of willows at Windsor take care of the sewage of twelve thousand people.

I recall but one other objection, the comparatively large rain-fall here, forty and fifty inches per year. At Gennevilliers 312 inches of water is sent on the land each year, and this "without making it damp or marshy since the establishment of subsoil drainage." And I know of two farms in my native town, in Worcester County, where irrigation with brook water has been practiced with advantage. Our average rain-fall is a little larger than that of Great Britain, where it is from forty to fifty inches per annum, but the yearly average humidity (between eighty and eighty-six) is nearer the point of saturation there than here, where it is about seventy. Dr. Frankland considers the vapor in the atmosphere of England as "reducing the temperature from fifteen to twenty-five degrees;" and Tyndall remarks that "the abundance of atmospheric vapor hinders the radiation of heat at night in England." The protracted droughts which are so common in this country are unknown in England, where vegetation never suffers from want of moisture. I am indebted to Dr. Bullard for facts and figures on this branch of the question, which enable me to say with positiveness that the meteorological conditions of our climate, with the possible exception of winter temperature, are far superior to those of England for the employment of irrigation and agriculture.

To-day I only ask that before building a metropolitan sewer for the eastern part of the State to discharge in tide-water, and thus repeat the now demonstrated errors of London, Brighton, and Torquay, irrigation and agriculture may be tried, on a limited scale, by some one having faith in the success, as we might ultimately desire to reverse the current of the sewage of the metropolitan district.

A large proportion of our rural population have gardens attached to their houses. I would discourage the use of cess-pools and recommend the use of these lands for the disposal of sink water. I am informed that Dr. Jewett, of Northborough, has for many years employed this system, and I have practiced it myself for ten years with complete satisfaction.[1]

Victor Hugo, in Les Miserables, describing the sewerage of Paris more than twenty years ago, makes a vivid picture of our systems at the present time. He writes as follows:—

"*The Earth Impoverished by the Sea.* Paris throws twenty-five millions a year into the sea. And this without metaphor. How, and in what manner? Day and night. With what object? Without any object. With what thought? Without thinking. For what return? For nothing. By means of what organ? By means of its intestine. What is its intestine? Its sewer. * * * Science, after long experiment,

[1] Babut du Maris quotes Dr. Carpenter as saying "the more dilute the better."

[1] In view of the well-known results of chemical analyses of sewage the question as to its fertilizing properties seems to be out of place. It is almost the only fertilizer the Chinese employ. "The Duke of Portland used nothing but sewage on his farm at Mansfield, and obtained a net return of about $125 per acre." (Babut du Maris.)

now knows that the most fertilizing and the most effective of manures is that of man. The Chinese, we must say to our shame, knew it before us. No Chinese peasant, Eckeberg tells us, goes to the city without carrying back, at the two ends of his bamboo, two buckets full of what we call filth. Thanks to human fertilization, the earth in China is still as young as in in the days of Abraham. Chinese wheat yields a hundred and twenty fold. There is no guano comparable in fertility to the detritus of a capital. A great city is the most powerful of stercoraries. To employ the city to enrich the plains would be a sure success. If our gold is filth, on the other hand our filth is gold. What is done with this filth, gold? It is swept into the abyss. We fit our convoys of ships, at great expense, to gather up at the south pole the droppings of petrels and penguins, and the incalculable elements of wealth which we have under our own hands we send to the sea. All the human and animal manure which the world loses, restored to the land instead of being thrown into the water, would suffice to nourish the world.

"These heaps of garbage at the corners of the stone blocks, these tumbrils of mire jolting through the streets at night, these horrid scavengers' carts, these fetid streams of subterranean slime which the pavement hides from you, do you know what all this is? It is the flowering meadow, it is the green grass. It is marjoram and thyme and sage, it is game, it is cattle, it is the satisfied low of huge oxen at evening, it is perfumed hay, it is golden corn, it is bread on your table, it is warm blood in your veins, it is health, it is joy, it is life. * * *

"Statistics show that France alone makes a liquidation of a hundred million every year into the Atlantic Ocean from the mouths of her rivers. The cleverness of man is such that he prefers to throw this hundred million into the gutter. It is the very substance of the people which is carried away, here drop by drop, there in floods by the wretched vomiting of our sewers into the rivers, and the gigantic collection of our rivers into the ocean. Each hiccough of our cloaca costs us a thousand francs. From this follow two results: The land impoverished and the water infected. Hunger rising from the furrow, and disease arising from the river. * * *

"A system of elementary drainage, as simple as the lungs of a man, and which is already in full operation in several villages in England, would suffice to bring into our cities the pure water of the fields, and send back into our fields the rich water of the cities, and this easy see-saw, the simplest in the world, would retain in our possession the hundred million thrown away.

"The present system does harm in endeavoring to do good. The intention is laudable, the result deplorable."

On motion of Dr. Henry I. Bowditch, it was

Voted, "That the thanks of this Society be tendered to the scientific gentlemen, not members of our body, who have contributed so much to our instruction and to the great interest of these meetings."

Adjourned.

DOMESTIC CORRESPONDENCE.

THE RATIONAL TREATMENT OF ASIATIC CHOLERA.

BY J. R. UHLER, M.D., BALTIMORE, MARYLAND.

In an article upon Asiatic Cholera, printed in this journal Aug. 9, among other things, hypodermic injections of water, or artificial serum, into the areolar tissue, are suggested in quantity sufficient to supply the waste from the bowels. This I think useful treatment, but the method of applying it does not seem to be the best, since the quantity of fluid needed would, if used in a few places, distend the tissues under the skin to such an extent as to produce large cavities, abscesses, and much discomfort, and if only a small quantity were injected in each place so many punctures would be required as to render it highly objectionable to most patients. A better plan, it seems to me (which I employed to nourish a patient who could not swallow), would be to use two or four hypodermic syringes deprived of their pistons connected by soft rubber tubing, with a reservoir or reservoirs similar to the aspirator, without valves or with valves reversed, containing the fluid, and insert the needles in the lose areolar tissues of each of the extremities and let them remain. By this means the tissues will be continually bathed with the serum filling the tubes by natural flow, care being taken not to elevate the reservoirs too high, so as to produce much pressure, and the liquid could then be uninterruptedly absorbed from the four points.

Another plan which, from doing all the work at once, and from the situation where it is applied, seems preferable to a surgeon, is to inject, and gently fill, the *peritoneal cavity* (by the aspirator or other instruments) with sterilized, artificial serum at the temperature of the body, thus bringing the fluid in contact, like ascitic fluid, with the other side of the greedy intestines, where it will act by pressure, slightly diminishing the lumen of the bowels, and can be absorbed to prevent the tarry condition of the blood, and also by exosmosis dilute, and wash away when the bowels are moved, those low forms of life that are said by Koch to be the cause of the disease.

234 W. Fayette St.

TÆNIA SAGINATI.

Chicago, August 11, 1884.

The youngest on record—not the worm, but the patient having it. It is not that tænia is a rare bird, or the catching of it a matter requiring much skill, yet because of the "early youth" of the patient I give you the facts. Ella May Sullivan, of Chicago, born December, 1881—consequently 2½ years old—latterly passed sections of the saginati. On Saturday was relieved of the "varmint." Who can give dates of a younger child passing tænia? Look up your records.

J. R. Wilkins, M.D.

NECROLOGY.

GRIFFITHS, THOMAS JONES, M.D., Surgeon U. S. Marine Hospital Service (retired), was born in South Wales, Sept. 10, 1826: died at his residence in Louisville, Ky., June 1, 1884. He received his literary education in England, and at an early age came to this country and settled at Louisville, Ky., where he studied medicine and was graduated in the Kentucky School of Medicine in 1852. He commenced the practice of medicine in Louisville, and rapidly acquired prominence in the profession, the esteem of his confrères, professional success and prosperity. During the war between the States he was appointed by the government Surgeon in charge of the Park Barracks and several military hospitals in Louisville.

In 1869 he was appointed Surgeon in charge of the U. S. Marine Hospital at Louisville, and remained in this service until 1877, when he retired from active duty on account of ill health, but was made consulting surgeon to the hospital. As an officer of this service he was active, efficient, widely known, and universally popular with his patients.

He was a man of vigorous mental and physical powers, an acute observer, a careful student, and an untiring worker in the line of legitimate medicine, to which he had contributed many valuable papers. He was a member of the various local medical societies in Louisville, the Kentucky State Medical Society, and of the American Medical Association, since 1874.

On the announcement or his death a meeting of the physicians of Louisville was called in respect to his memory, and resolutions of sympathy and regret were passed, which were ordered published in the Louisville and Philadelphia medical journals, also the daily papers.

A large number of physicians of the city attended the funeral, the cortege being one of the largest seen in the city. The remains were interred in Cave Hill Cemetery.

His wife and an only son, Dr. Wm. M. Griffiths, survive him.

H. W. AUSTIN, M.D.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.
Lock Box 1274, Philadelphia, Pa.

THE PLAGUE COMING THIS WAY.—Washington, Aug. 19.—The United States consul at Barbadoes, West Indies, telegraphes to the state department as follows: "The ship Bracadaile left St. Lucia for New York on the 16th with cholera. This is the British steamer which left Calcutta on the 4th of June bound for Demerara and New York. The cholera broke out during her passage, and on her arrival at Table bay, July 4, she was reported to have had eighteen fatal cases. There were 651 coolies on board, of whom twenty-eight were down with cholera. The steamer took in coal at Table bay and left for St. Lucia, where she arrived on the 3d inst., and was placed in quarantine." The health officer at New York has been notified to quarantine the vessel on her arrival.

YELLOW FEVER.—The schooner "J. Taylor," from Porto Bello, arrived at Cape Charles quarantine station on the 12th inst., with three cases of supposed yellow fever on board. One death had occured on board previous to the arrival of the ship. The sick were removed to the U. S. Quarantine Station, Fisherman's Island, and the vessel permitted to proceed to the Baltimore quarantine.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM AUGUST 9, 1884, TO AUGUST 15, 1884.

Bartholf, J. C., Captain and Assistant Surgeon, relieved from duty at Vancouver Bks., Wash. T., and ordered to take station at Portland, Oregon. (Par. 1, S. O., 114 Hdqrs. D. of Col., August 1, 1884.)

Heymann, C. L., Captain and Assistant Surgeon, ordered to proceed to Fort Ontario, N. Y., and report for duty. (Par. 3, S. O., 163, Hdqrs. D. of East, August 3, 1884.)

Kane, John J., Captain and Assistant Surgeon, granted leave of absence for one month. (Par. 1, S. O., Hdqrs. D. of East, August 10, 1884.)

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING AUGUST 16, 1884.

Medical Inspector E. Bogert, to be Fleet Surgeon, Asiatic Squadron.

Surgeon H. I. Babin, detached from Minnesota, ordered to Marine Rendezvous, N. Y.

P. A. Surgeon R. Whitney, detached from Marine Rendezvous, N. Y., ordered to Naval Academy as member of Examninig Board.

Surgeon G. H. Cooke, ordered to Naval Academy as member of Examining Board.

P. A. Surgeon P. M. Rixey, detached from special duty at Washington, ordered to U. S. S. "Lancaster."

Surgeon T. Woolverton, ordered to U. S. S. "Minnesota."

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ORIGINAL ARTICLES.

DERMATITIS HERPETIFORMIS.

BY LOUIS A. DUHRING, M.D., OF PHILADELPHIA, PA.

Read in the Section on Practice of Medicine and Materia Medica, of American Medical Association, May, 1884.

Under the name Dermatitis Herpetiformis I propose to place a number of cases of skin disease that I have encountered from time to time. These cases at present are for the most part nameless, having been regarded and diagnosed, either as peculiar manifestations of one or another of the commoner and well-known diseases, as eczema, herpes, or pemphigus, or, in some cases, as undescribed diseases. From these remarks it will be inferred that the disease is rare, and such in a measure is the fact. At the same time I have met with a sufficient number of cases during the last fifteen years, to warrant the view that the disease is worthy of a special description and a name. I first recognized the affection as being peculiar as far back as 1871, but with the few cases observed at that time was at a loss to classify or to treat them satisfactorily. Since this date I have encountered a number of other cases illustrating the same and other varieties of the disease. In the first edition (1877) of my Treatise on Skin Diseases, I made no allusion to the subject, for the reason that my mind was not clear as to the relation that the several cases I had encountered bore one to another, nor that they were really all merely different manifestations of the same pathological process. In the light, however, of a number of marked cases that have now been under observation for a period of years, and of others that have been more recently noted, the statement may be made that, dissimilar as they may in some cases at first sight appear, they all represent varieties of one and the same disease, for which I propose the name "dermatitis herpetiformis."

In the present communication attention will be directed to the principal features of the disease, describing more particularly its symptoms and natural course. On another occasion cases illustrating the several varieties will be brought forward.

It may be premised here that dermatitis herpetiformis includes what Hebra[1] designated first herpes impetiginiformis and afterwards "impetigo herpetiformis;" that is to say, that the cases of Hebra constitute one of the varieties of the disease it is proposed to call dermatitis herpetiformis. And here it may be remarked that this name must not be confounded with the "dermatitis circumscripta herpetiformis" of Neumann, a term introduced by this author a few years ago to designate lichen planus, which at that time he supposed to be an undescribed disease. It may be added that this term is now no longer used by Neumann.

In the second edition of my Treatise on Skin Diseases (1881) p. 276, under the title "impetigo herpetiformis," will be found an abstract of Hebra's description of the disease he so named.

His account may be summarized as follows: It is a rare and grave form of skin disease, of which, at the date of his report, he had seen but five examples, four of which terminated fatally. The disease is characterized by the formation of yellowish pustules, arranged in groups or in an annular form, which tend to run together and to dry into yellowish, greenish, or brownish crusts, beneath which a red, excoriated, moist surface exists. On the periphery of the lesions and patches new groups and rings of pustules form. The course of the disease was similar in every case. Each outbreak of pustules was preceded by malaise, chills, fever, and systemic disturbance. The disease occupied all regions, with preference for the anterior surface of the trunk and the flexor surfaces of the thighs.

Single cases, under different names,[1] were before this date reported by Bærensprung,[2] Neumann,[3] Auspitz,[4] and Geber.[5] Heitzmann[6] has more recently also reported a case with the name impetigo herpetiformis. As supplementary to Hebra's description, I gave my own experience with hitherto undescribed varieties of the disease in the following language: *"Within the last ten years I have from time to time met with cases, occurring in both sexes, representing other phases of the disease than heretofore described. In some cases the lesions were vesicular and bullous;*[7] *in others pustular; in still others, and in the majority*

[1] Wiener *Med. Wochensch.* No. 48, 1872; see also *Lancet*, March 23, 1872.

[1] Wiener *Med. Wochensch.*, No. 48, 1872; The *Lancet*, March 23, 1872; Atlas der Hautkrankheiten, Heft ix, Tafeln 9 und 10. Wien, 1876.

[2] Atlas der Hautkrankheiten, Tafel 8. Berlin, 1867.

[3] Lehrbuch der Hautkrankheiten, III. Auflage, Wien, 1873, p. 173.

[4] Archiv für Derm. und Syph., II. Heft, 1869, p. 246.

[5] Jahresb. des K. K. Allg. Krankenhauses zu Wien, Jahrg. 1871.

[6] *Archives of Dermatology*, January, 1878.

[7] In Hebra's fifth case the disease was characterized by vesicles and blebs, from which circumstance he was inclined to regard the disease as a variety of herpes, and designated it "herpes impetiginiformis." *Lancet*, March 23, 1872.

of cases, bullous and pustular combined, or these lesions appearing alternately,—the disease being at one time vesicular and bullous, at another time pustular. In all instances the disposition to group or to extend about the periphery was more or less marked. A varied amount of constitutional disturbance, with violent itching, was always present. The disease manifested a disposition to constant recurrence, in the form of repeated attacks, extending in the majority of cases over years, and was but little influenced by treatment. None of the cases occurred in pregnant women; nor in any case has the disease proved fatal. The disease is liable to be confounded with eczema, ecthyma, and pemphigus, according as the lesions happen to be vesicles, pustules, or blebs. The etiology and pathology of the disease are both obscure. In some cases it possesses many features in common with pemphigus; . . . . . other cases, however, manifest but little disposition to the formation of blebs. It is therefore evident that the process is capable of appearing in the form of various lesions, and that the true impetigo herpetiformis represents but one variety of the disease. More information is needed before the disease can be assigned its proper place in classification."

These words, written four years ago, give a brief account of the disease which is the subject of this communication, and portray its important features. The description is succinct, but it embraces the leading points, and, it may be added, agrees with the views I hold at the present time.

It will be seen from this discription that the name impetigo herpetiformis is altogether inappropriate to express the condition in other and equally important varieties of the disease. The cases that fell under Hebra's observation were for the most part instances of the pustular variety, and he therefore regarded the name he selected as proper; but to call a vesicular or bullous disease "impetigo," with our present ideas of nomenclature, is of course most confusing. Because of the multiformity of the lesions manifested in the several varieties, which will be shown may exist, therefore I think the term dermatitis more suitable, allowing as it does all varieties of this most protean affection to come under its title. The adjective herpetiformis expresses the chief characteristic of the disease, and as in Hebra's cases of the pustular variety, has been present in all of my cases. The disease is unquestionably herpetic, especially in its typical and commonest manifestation, that is, the lesions tend to be vesicular and to occur in small groups or clusters. And for this reason it has on several occasions occurred to me that the affection ought to be regarded as a herpes, an observation that was also made by Hebra, and by the other reporters of cases mentioned. All of these observers recognized its herpetic character.

The name herpes pruriginosus, it might be suggested, or herpes chronicus (as proposed by Neumann) would seem suitable and would answer well for most of the cases observed, itching being always a marked and constant symptom. At the same time, if this term were adopted, our present definition of herpes would require to be changed, and we should be obliged to regard pustular and bullous lesions as manifestations of herpes, an admission which would be confusing, or even disastrous in its results.

For these reasons I think the name now introduced preferable. That such a protean disease as I have intimated exists, and that these varied cutaneous manifestations are all but forms of one pathological process, there can be no doubt, and I shall elucidate this point by describing the several important varieties, which, as in the case of eczema, are based upon the predominance of certain lesions. Before doing this, however, I may refer to certain symptoms common to all forms of the disease, to which no particular allusion has as yet been made. In severe cases prodromata are usually present for several days preceding the cutaneous outbreak, consisting of malaise, constipation, febrile disturbance, chilliness, heat, or alternate hot and cold sensations. Itching is also generally present for several days before any sign of efflorescence. Even in mild cases slight systemic disorders may precede or exist with the outbreak. This latter may be gradual or sudden in its advent and development. Not infrequently it is sudden, one or another manifestation breaking out over the greater part of the general surface diffusely or in patches in the course of a few days, accompanied by severe itching or burning.

A single variety, as for example, the erythematous or the vesicular, may appear, or several forms of lesion may exist simultaneously, constituting what may very properly be designated the multiform variety. The tendency is, in almost every instance that I have observed, to multiformity. There is, moreover, in almost every case a distinct disposition for one variety, sooner or later, to pass into some other variety; thus, for the vesicular or pustular to become bullous, or *vice versa*. This change of type may take place during the course of one attack or on the occasion of a relapse; or, as is often the case, it may not show itself until months or years afterward. I have notes of several cases where, during a period of from two to five years, the erythematous, vesicular. and bullous varieties were all in turn manifested. Permit me, however, again to state that not only multiformity of lesion, but irregularity in the order of development, is the rule, whether during an attack or later in the course of the disease.

Itching, burning or pricking sensations are always present. When the eruption is profuse they are intense, and cause the greatest suffering. As in the case of eczema, before and with each outbreak they become most violent, abating in a measure only with the laceration or rupture of the lesions.

The disease is rare, but is of more frequent occurrence than I formerly supposed. I have encountered fifteen cases, during a period of as many years, drawn from hospital, dispensary and private practice. All, with one exception, were adults, including both sexes in about equal proportion. The natural history is interesting. The process is in almost all instances chronic, and is characterized by more or less distinctly marked exacerbations or relapses, occurring at intervals of weeks or months. The disposition to appear in successive crops, sometimes slight, at other times severe, is peculiar. Relapses are the rule, the

disease in most cases extending over years, pursuing an obstinate, emphatically chronic course. All regions are liable to invasion, including both flexor and extensor surfaces, the face and scalp, elbows and knees, and palms and soles. Excoriations and pigmentation, diffuse and in localized areas, are in old cases always at hand in a marked degree. The pigmentation is usually of a mottled, dirty-yellowish or brownish hue, and is persistent. I have seen it as pronounced as in chronic pediculosis corporis.

The more important forms of the disease may now be considered.

DERMATITIS HERPETIFORMIS (ERYTHEMATOSA).

The erythematous variety manifests itself in patches or as a diffuse efflorescence, as an erythema or superficial inflammation, usually of an urticarial or erythema-multiform-like type. The urticarial element may be marked, the skin showing a disposition to acute œdematous infiltration in a diffuse form. Urticarial complication, rather than urticaria, is suggested by the condition of the skin; in like manner, a resemblance to diffuse erythema multiforme may be noted. At times the patches, whether discrete or confluent, are circumscribed, and later, by their coalition, show irregularly-shaped, marginate outlines, as in erythema multiforme. The color varies with the shape, being at first bright-red, but soon becoming deep-red or violaceous, mottled, and tinged with yellowish hues. The variegation is usually pronounced in the later stages of the process, at which period more or less diffuse pigmentation is also present. Together with the erythematous inflammation there may form maculo-papules, or circumscribed or diffuse flat infiltrations, variable as to size and shape; also vesico-papules, the process now bearing a resemblance to the first stage of herpes iris. It will thus be noted that the eruption, in its general aspect and course, is much like that of erythema multiforme. In severe cases the outbreak is preceded by and accompanied with malaise, chilliness or slight febrile disturbance. The itching is generally violent, the disease differing in this respect from erythema multiforme.

Its course is variable. It may continue for days or weeks, or, as is usually the case, it may pass into the multiform variety, to be described later. It may be the first manifestation, or it may follow other varieties as a relapse.

As a variety, it is not as clearly defined as the vesicular, bullous or pustular, in some cases it appearing to be but the first manifestation of one of the first-mentioned forms. But it is important that its features be described, for the reason that it is liable to be met with as a clinical picture, and may readily be confounded with other diseases, notably, urticaria, erythema multiforme or eczema. I recall two cases where the diagnosis was at first difficult, and it was not until other manifestations appeared on the skin that the true nature of the process became evident.

DERMATITIS HERPETIFORMIS (VESICULOSA).

The vesicular variety is that most frequently met with. It is characterized by variously sized, varying from a pin-head to a pea, flat or raised, irregularly shaped or stellate, glistening, pale-yellowish or pearly, usually firm or tensely distended vesicles, as a rule, unaccompanied by areolæ. In their early stages they can be seen only with difficulty, and are liable to be overlooked in the examination. Sometimes they can only be detected or seen to advantage in an oblique light. This observation I have repeatedly noted, and arises from the fact of the lesions being flat, translucent and without areolæ. In size they vary extremely, large and small being formed side by side, and in this respect they differ from the vesicles of eczema. Here and there papules, papulo-vesicles, vesico-pustules and small blebs will sometime be encountered. Concerning their distribution, the eruption as a whole is disseminate, the lesions existing scattered more or less profusely over a given region, as, for example, the neck or the back, but they are for the most part aggregated in the form of small clusters or groups of two, three or more; or there may be patches here and there as large as a silver dollar, upon which a number will be seated. When in close proximity they incline to coalesce, as in herpes zoster, forming multilocular vesicles or small blebs. Where this occurs they are generally slightly raised and are surrounded with a pale or distinctly reddish areola, which shows forth the irregular, angular or stellate outline of the lesion. At this stage, moreover, the little cluster will generally present a "puckered" or "drawn up" appearance, indicative of its herpetic nature.

The eruption is usually profuse, sometimes to the extent of the upper extremities, trunk and thighs being well covered. It may attack any region, the neck, chest, back, abdomen, upper extremities, and thighs all being especially liable to invasion.

The most striking symptom is the itching. Not infrequently burning is also complained of. Itching, however, predominates, and is in all cases violent or even intense. Patients state that it is altogether disproportionately in excess of the amount of eruption. It is, moreover, a persistent itching, causing the sufferer to scratch constantly. It generally precedes the outbreak, and does not abate until the lesions have been ruptured. Old sufferers, familiar with the natural course of the process, have informed me that they can obtain no relief until the lesions have been ruptured. From my observation I should say that the itching was both more severe and more lasting than in vesicular eczema. The vesicles make their appearance slowly, so that several days, or a week, may be required for their complete development. Notwithstanding that scratching is indulged in in the early stages of the disease, excoriations are not prominent, owing to the fact that the walls of the lesions are tough, and do not rupture, and that they incline to re-fill immediately on being evacuated.

The diagnosis in some cases is attended with difficulty, on account of the resemblance to vesicular eczema. I recall the embarrassment experienced in the classification of the earlier cases encountered, and the provisional diagnoses of "vesicular eczema?" made at the time. But the irregularity in the size and form of the vesicles; their angular or stellate outline; their firm, tense walls, with no disposition to rupture, and their herpetic character, will all serve

to aid in the diagnosis. In some cases the constitutional disturbance and the magnitude of the eruption, as regards profusion, distribution, and multiformity, showing a more formidable disease than eczema, will also be striking. The itching and burning will usually be found to be more continuous and intenser than in eczema. The obstinacy of the disease to the ordinary treatment of eczema, moreover, must also soon become apparent, the usual milder remedies so frequently of service in acute vesicular eczema, being of little or no benefit in this disease. Finally, the tendency to repeated relapses, and the chronicity of the affection, must strike the observer as peculiar. This variety cannot be confounded with herpes zoster, herpes iris, or pemphigus. Its relations to the "herpes gestationis" of some authors will not be considered in this paper, further than to state that in my opinion they are probably one and the same disease. On a future occasion I shall deal more at length with this point.

DERMATITIS HERPETIFORMIS (BULLOSA.)

In the bullous variety the lesions are more or less typical blebs, tense or flaccid, rounded or flat, usually the former, filled with a serous or cloudy fluid, seated upon a non-inflammatory or slightly inflamed base. In size they vary from a pea to a cherry or walnut, and are for the most part irregular or angular in outline. They incline to group in clusters of two or three, the skin between them in this event being reddish and puckered. Sometimes in immediate proximity—almost contiguous—will exist one, two or three, or a part of a circle of small, pin-head sized, flat, whitish pustules. Vesicles of all sizes, flat or raised, are also generally found near by or disseminated over the affected surface. As in the other varieties, all regions may be attacked, especially the trunk, upper extremities and thighs. In several cases I have seen the greater part of the general surface invaded most profusely, in which event the lesions are usually smaller than where comparatively few exist. They incline to appear in crops at irregular intervals, as in the other varieties. The lesions are generally ruptured in the course of a few days and then crust over with a yellowish, greenish or brownish crust. They are accompanied by burning and itching, which may be very severe. They bear resemblance to those of pemphigus vulgaris, with which of course they may be readily confounded, but they are more herpetic in character. They differ in that they incline to group, and have a more inflammatory herpetic aspect, the type of which picture is seen in herpes zoster. Moreover, around and near the bleb will usually be found vesicles and pustules, the latter often in close proximity, the whole manifestation being quite different from that of pemphigus.

DERMATITIS HERPETIFORMIS (PUSTULOSA).

The pustular variety is generally less clearly defined than the vesicular, because the lesions are often intermingled with vesicles, vesico-pustules and blebs. In typical cases the pustules are acuminate, rounded or flat, tense or flaccid, usually the former, and vary in size from a pin-point to a pea or silver quarter-dollar. Vesicles and blebs in some cases precede the pustules. The smallest lesions are generally flat, or on a level with the surrounding skin, and, as stated, are frequently not larger than a pin-point or pin-head. Larger pustules, the size of a pea, are generally rounded or acuminate, and are surrounded by a reddish inflammatory areola. Later they incline to flatten, and to increase in size by spreading peripherally, and drying in the centre.

Sometimes they are seated on a slightly raised base. When fully matured they generally present an "angry" appearance, the skin immediately around them having a "puckered" look, from the fact that the pustule itself is irregular in outline, as sometimes is the case in herpes zoster.

They incline to form in groups of two, three or more, and moreover, often appear in patches of two or more groups. Such an arrangement is generally met with on the trunk. The grouping is further peculiar, in that a central pustule will often be immediately surrounded by a variable number of smaller pustules, sometimes in a circinate form, as in herpes iris.

In other localities, however, no such peculiarity occurs, the lesions being discrete, and even disseminate. The pustules are usually opaque, and of a whitish color; sometimes they are yellowish, though they are seldom so yellowish as in pustular eczema. Not infrequently slight hæmorrhagic exudation occurs, as in the later stages of herpes zoster, giving them a reddish, bluish or brownish hue. They are generally accompanied by sensations of heat, pricking or itching; in some cases these symptoms precede for several days the eruption. They pursue a slow course, from one to two weeks being usually necessary for their full development; in other cases their maturation occurs more rapidly. In some cases, together with the pustules are found vesicles and blebs of various shapes and sizes, and these often form immediately by the side of, or in close proximity to, the pustules. Papules and papulo-vesicles may also be present. In a given area, say of a few square inches, as for example upon the abdomen, there may exist all of these lesions in various stages of evolution. This multiformity is striking, and presents a curious and peculiar mixture of lesions. The attacks last from two to four weeks, after which there generally follows a comparative respite of from one to six weeks. The disease may thus be kept up indefinitely, the outbreaks being at one time slight, at another time severe.

Sometimes it has preceded other varieties; in other cases it has followed the bullous variety; while in some instances that have been under observation for a long period, it has at intervals of months alternated between the vesicular and bullous varieties. After what has been previously said, it need scarcely be stated that this variety is identical with the "impetigo herpetiformis" of Hebra, although in but few of the cases observed by me have the symptoms been so pronounced as in Hebra's experience, if I may judge from the portraits in his Atlas of Skin Diseases. The account given by me relates to the disease as I have encountered it. Hebra's account has been already given, and need not be repeated here. The differ-

ence of experience concerns chiefly the severity of the process. Thus, in none of my cases has it proved fatal, while it will be remembered four out of five of Hebra's cases died, and according to Kaposi[1] (Hebra's successor), ten out of eleven cases observed by him have perished. Finally, I have observed it to occur about as often in men as in women, and also in the latter apart from pregnancy. Hebra, on the other hand, met with it only in women, and, moreover, only during the parturient state.

Concerning the constitutional symptoms, they may be stated to vary with the gravity of the attack. Usually, however, they are more marked than in the other varieties, rigors and alternate paroxysms of heat and cold being especially noticeable. It is the most serious phase of the disease.

DERMATITIS HERPETIFORMIS (PAPULOSA).

The papular variety is in my experience rarer than any other form. I have met with only two cases, one in an adult, the other in a boy, and in both of these the eruption was scanty. It is characterized by the formation of small or large pea-sized, irregularly-shaped, usually firm, reddish or violaceous papular lesions, occurring for the most part in groups of two or three, scattered here and there over the affected surface. They are of variable size, large and small ones not infrequently existing side by side, and are as a rule ill-defined, being neither acuminate nor flat, but resemble the papular infiltrations sometimes met with in abortive herpes zoster. They are of an acute or subacute inflammatory type, and, as stated, bear resemblance to abortive herpetic lesions, and also to certain phases of chronic relapsing papular eczema. Their surfaces are generally excoriated, from scratching, and may be covered with blood-crusts, or with slight, adherent, thin epidermic scales.

The itching is severe, so much so that comparatively few lesions may so torment the patient as to interfere with the night's rest.

Ill-defined papulo-vesicles are also met with here and there, as in the case sometimes of papular eczema. The lesions pursue a slow, chronic course, lasting from one to two or four weeks, when they gradually disappear, leaving more or less pigmentation. Relapses are the rule at longer or shorter intervals.

As I have intimated, this variety bears a close resemblance to chronic papular eczema, and the earlier cases encountered by me were so diagnosed, but the irregularity in the size and form of the lesions; the disposition to group; the usually slow evolution of the lesions; the tendency to appear in crops at irregular intervals; the chronicity of the process; and the extreme obstinacy to local and internal treatment, are all peculiar. It is the mildest phase of the disease.

DERMATITIS HERPETIFORMIS (MULTIFORMIS).

This may be regarded in the light of clinical variety, one that is eminently useful from a practical standpoint. It is a variety of the disease in the same sense that eczema rubrum is a variety of eczema. It is important to consider it for the reason that it is a picture which may at any time show itself in the course of the disease. It is a phase not infrequently met with, and on account of the great mixture of lesions and the difficulties presented in diagnosis, is worthy of special description. The multiform variety consists of erythematous, sometimes slightly raised, urticarial patches of variable size and outline, often confluent, of a reddish or violaceous, yellowish, dusky, sometimes variegated, color, not unlike that of erythema multiforme. In addition, there often exist more or less well-defined, irregularly shaped or rounded, maculo-papules and flat infiltrations, papules and vesico-papules, all in various stages of evolution. Small blebs and pustules, pin-point sized or larger, may also be present, though with the vesicular element predominating it is not usual to meet blebs or pustules of large size nor in numbers. As the disease is in an early or late stage of its existence, will pigmentation and excoriations be slight or marked. Briefly, then, to recapitulate, there exists a mixture of lesions, with no single type predominating, calling to mind in its behavior eczema, although it is far more capricious and protean. It must also be remembered that the process may at any period change its type, such an occurrence usually taking place with an exacerbation or a relapse. Thus, the vesicular variety may exist for a variable period, to be followed in a few weeks or months by an attack of blebs, or it may be pustules, or by a mixture of the blebs and pustules. This mingling of several varieties is a marked and peculiar feature of the disease, giving a very striking dermatological picture, different from that seen in any other disease of the skin.

In conclusion, permit me to summarize by saying that I have endeavored to show:

1. The existence of a distinct, well-defined, rare, serious, inflammatory disease of the skin, manifestly of an herpetic nature, characterized by systemic disturbance, a great variety of primary lesions, by severe itching and burning, and by a disposition to appear in repeated successive outbreaks.

2. That the disease is capable of exhibiting itself in many forms, all having a tendency to run into or to succeed one another irregularly in the natural course of the process.

3. The principal varieties are the erythematous, papular, vesicular, bullous and pustular, which may occur singly or in various combinations.

4. That it is a remarkably protean disease.

5. That the pustular variety is the same manifestation as the disease described by Hebra under the name "impetigo herpetiformis," this being the only form hitherto described.

6. That the several other and equally important forms are worthy of special remark.

7. That the term "dermatitis herpetiformis" is sufficiently comprehensive and appropriate to include all varieties of the process.

8. That it may occur in both sexes, and in women independent of pregnancy.

9. That it usually pursues a chronic, variable course, often lasting years, and is exceedingly rebellious to treatment.

[1] Pathologie und Therapie der Hautkrankheiten, 2te Auflage, Wien, 1883.

A PERIODICAL PAINFUL AFFECTION, BELIEVED TO BE LOCATED IN THE LIVER, ITS CAPSULE, OR BOTH, OR POSSIBLY AN IRRITATION OF THE CAPSULE OF GLISSON.

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Although the anatomy of the Capsule of Glisson was carefully pointed out by Dr. Francis Glisson in his work on "The Anatomy of the Liver" as early as the middle of the sixteenth century; and although occasionally ever since, medical writers have hinted at diseases of this tunic, yet after a review of many of their writings, and after comparing them with the condition we have designated as above, we are forced to conclude that it is a separate and distinct disease, readily recognizable from associate diseases of the liver, and meriting a distinct place of its own in the catalogue of hepatic maladies.

DEFINITION.

For the sake of brevity we will only use the term "Irritation of the Capsule of Glisson," to designate this disease which we believe to be a rheumatoid irritation of a part or all of the connective tissue which forms the inner tunic of the liver and envelops the portal vein, hepatic artery and duct, together with the lobules of the liver.

It is characterized by intermitted pain, of a burning, boring, throbbing, darting or lancinating character, occurring usually at night, but unattended with signs of inflammation, by chill, fever, constipation, loss of appetite or headache.

FREQUENCY.

Whilst quite rare in comparison with the more common hepatic diseases, yet this condition occurs sufficiently often in this region to merit special attention by every practicing physician.

My friend, Dr. J. W. Craig, of Mansfield, Ohio, who has had thirty years of active practice in the profession, and to whom I am indebted for having first called my attention to this condition, reports having treated over one hundred cases in the last twenty years, or an average of five cases a year.

I have seen and treated directly or indirectly twenty-five cases in the last six years, or an average of over four cases a year.

CAUSES.

The causes which seem most clearly to lead to this disease are sedentary habits.

In fact neither Dr. Craig nor myself have ever met with it in strictly active persons, but invariably in those who had led an inactive life, or were more or less confined in their occupations.

Hence it has been observed to occur more frequently in women than in men, and in persons of middle or advanced age than in children or young persons; in fact I never knew of it occurring in the latter.

We have met it oftener in persons engaged in the following occupations or professions than in all others put together; which we have arranged in the relation of their frequency, commencing with the most frequent:

Dressmakers, engineers, ministers, book-keepers, saddlers, printers, shoemakers, tailors, sewing-machine agents, merchants, and one case in that of a boiler-maker, and one occurring in a farmer's daughter.

It is seldom found in persons addicted to intemperate habits, but rather in persons of unquestionable temperate habits and with no history of syphilis either constitutional or acquired.

This disease has been noticed to occur most frequently during those times of the year when rheumatism is most prevalent, although it may occur at any time.

SYMPTOMS.

The premonitory symptoms of this disease come on so insidiously, that the patient is scarcely aware that he is afflicted with more than a "slight colic," or a "touch of neuralgia," or "the cramps," as they will often express it, until it gradually increases in frequency and severity, and perhaps his attention is called to the fact of its periodical returns every few nights, which very greatly disturbs his nocturnal rest.

He generally goes to bed feeling perfectly well, but after a few hours' sleep is awakened with burning, shooting pains in the region of the liver, which keep him awake or compel him to walk his room for an hour or so, or perhaps till morning, before it subsides.

Generally by morning, in the less advanced stages of the disease, the pain subsides and the patient feels as well as usual, and goes to his work thinking "that is all there will be of it," until in a few days he has a repetition of the same, excepting it has increased somewhat in severity, or is more prolonged than the previous attack.

Thus it creeps on gradually, until the attacks of pain become so severe as to warrant his calling a physician, who may find his patient walking the room in agony, or rolling from side to side of the bed, or sitting tailor fashion with the arms folded across the bowels and rocking to and fro. This motion he will sometimes keep up for hours, asserting that "nothing else gives him as much relief," or that "he would die" if he were to stop it.

Upon interrogation, it will be found that these attacks, which at first were weeks apart, are now separated by an interval of a few days only; or perhaps they occur every night, generally coming on about the same time each night, and with but few exceptions after the patient had fallen asleep.

After the attack subsides the patient feels somewhat exhausted, with perhaps a slight tenderness over the hepatic region, but otherwise appears to be in usually good health—so much so that he imagines every attack is certainly the last, until experience induces him to be skeptical of the most favorable symptoms.

If relief is not afforded, these attacks, which at first only last a few minutes, will gradually increase in duration to several hours, or even days, with but very slight interruption.

The pain in these attacks is described as burning,

boring, cutting, shooting, aching, throbbing or lancinating, generally, however, of the character of the first two, sometimes described as a "coal of fire in their right side."

It is confined almost entirely to the hepatic region, at times almost entirely to the front and right side, and at others extending around to the back, but seldom any pain is complained of on the left side.

A physical examination reveals a normal or but slightly accelerated pulse, and a normal temperature, a moist, although at times a slightly furred tongue, little or no headache. Occasionally there is a slight sallowness of the skin in the advanced stages of this disease, but there is seldom jaundice.

The appetite is usually good, although at times it is irregular, and occasionally it is poor. Now and then there is vomiting, which generally comes on during a severe attack of pain, when present at all, I having seen it in only one case, and Dr. Craig in but a few.

An examination of the liver reveals but slight enlargement at any time, and often none at all; and but little tenderness even during the attack, and little or no tenderness in the intervals except in cases of long standing.

There is no perceptible hardening of the gland or tendency to a nodulated or so-called "hobnailed" condition.

The bowels are seldom constipated, except in cases which, as patients say, are "naturally so."

The stools are normal in color, regularity and consistency, and after repeated examinations have never been found to contain gallstones.

The urine is generally normal in color, quantity and chemical composition.

The skin is moist, and there is but slight emaciation or general debility, except in very advanced and long continued cases.

DIAGNOSIS.

The diagnosis of this so-called irritation of the capsule of Glisson, whilst somewhat difficult at first, will soon be found to have such distinctive features centered around it, as to render this malady easily distinguished from associate abnormal diseases of the hepatic gland.

The diseases for which it might be mistaken are the "passing of gallstones," "interstitial hepatitis," "congestion of the liver," "perihepatitis," "inflammation of the bile-ducts," "cirrhosis" and "hepatalgia."

If the following differences are borne in mind, there will be little or no danger of mistaking this disease for the passing of gallstones:

PASSING OF GALLSTONES.	IRRITATION OF THE CAPSULE OF GLISSON.
The attacks commence suddenly, and may reach their maximum of severity in the first attack.	The attacks do *not* commence suddenly, but come on gradually, increasing in severity with each returning attack.
The attacks may come on at any time, often just after a meal, a drive over rough roads or violent exercise	The attacks nearly always come on at night, seldom immediately after a meal or violent exercise.
There is frequent vomiting.	Seldom any vomiting.
Colicky, tearing pains.	Burning, boring, throbbing pain.
Marked temporary jaundice may occur from obstruction.	Seldom ever is there any jaundice.
A careful examination of the fæces will often reveal gallstones after an attack.	Gallstones are never found in the stools after an attack.

A careful observation of these few differential symptoms will seldom fail to enable the practitioner to make a clear diagnosis between these two conditions. It is possible to confound this disease with interstitial hepatitis, although it is generally very easily distinguished by the following differences:

INTERSTITIAL HEPATITIS.	IRRITATION OF THE CAPSULE OF GLISSON.
Generally associated with alcoholic intemperance.	Seldom associated with alcoholic intemperance.
Venous stigmata on the cheeks	No venous stigmata on the cheeks.
Pain and irritation over the liver more or less constant	Pain coming and going in paroxysms.
More or less jaundice.	Sometimes slightly sallow, but seldom jaundiced.
Nausea and vomiting, especially on first rising in the morning.	Seldom any nausea or vomiting.
Loathing of solid food, particularly in the morning.	Appetite generally good, or but slightly impaired.
Diarrhœa and constipation alternating with each other.	Bowels seldom out of order.
Urine very scanty and dark colored.	Urine generally normal or nearly so.
Occasional pyrexia.	Seldom, if ever, any pyrexia.
Often portal obstruction.	No portal obstruction.
Enlargement followed with contraction of the liver.	Seldom any or but slight enlargement, and never followed by contraction of the liver.
Often has a distinct syphilitic origin.	Seldom has a clear syphilitic origin.
Sometimes comes on with a chill.	Never has been known to be preceded by a chill.
May have ascitis.	Never has ascitis.
Emaciation and general debility.	Emaciation not marked, and but slight or at times no debility.
A dry, harsh skin.	Skin not dry and hard.

By a comparison of the following diagnostic points, we can readily distinguish this disease from hepatic congestion.

CONGESTION OF THE LIVER.	IRRITATION OF THE CAPSULE OF GLISSON.
Enlargement of the liver.	Little or no enlargement of the liver.
A continued feeling of tightness, or painful distention over the liver.	No feeling of tightness or distention, but a deep burning, boring, lancinating pain of a paroxysmal character.
Jaundice is nearly always present.	Jaundice is seldom present.
Nausea and loss of appetite.	Seldom nausea or loss of appetite.

Indigestion, furred tongue and headache.	Seldom troubled with indigestion. but slightly furred tongue and seldom any headache.
Vomiting and often diarrhœa, or both.	Seldom any vomiting or diarrhœa.
More or less dyspnœa.	Seldom ever the slightest dyspnœa.
More or less stupidity and drowsiness.	Seldom any stupidity or drowsiness.
Often signs of obstruction to portal circulation.	No signs of obstruction to portal circulation.
Urine scanty and high colored, with more or less bile.	Urine normal or nearly so.
Temporary albumenuria often occurs.	Albumenuria has never been known to occur.
The attacks continue without interruption until the congestion subsides.	The attacks come on by paroxysms, between which the patient feels quite well.

Irritation of the capsule of Glisson may also be confounded with perihepatitis, which is more particularly an inflammation of the peritoneal covering of the liver, which inflammation may also extend to Glisson's capsule, which is generally the result, or it may be the consequent of acute peritonitis, or some organic disease of the liver.

It may also be the result of traumatic causes, or the spreading of inflammation from adjacent tissues, and is always ushered in with a chill and followed with fever, pain, and superficial tenderness, together with all the symptoms of inflammation.

On the other hand, in irritation of the capsule of Glisson, there is no peritonitis, and it is not ushered in with a chill or followed by fever or inflammation, and is not continued without interruption, but is paroxysmal and free from fever and inflammation.

The chief diagnostic points between this disease and "inflammation of the bile ducts" may be briefly summed up as follows:

INFLAMMATION OF THE BILE DUCTS.	IRRITATION OF THE CAPSULE OF GLISSON.
Generally met with in children or old, gouty persons.	Never met with in children, and not more frequently in old, gouty persons than ordinarily healthy persons of middle age.
Partial or complete obstruction of the bile ducts.	No obstruction of the bile ducts.
Jaundice.	No jaundice.
Preceded by gastro-duodenal catarrh.	Not preceded with gastro-duodenal catarrh.
Usual signs of inflammation.	No symptoms of inflammation.
The inflammation usually commences in the mucous membrane of the digestive canal and extends from there to the bile ducts.	No inflammation of the digestive tract, and is not communicated from the alimentary canal.
Pulse is abnormally slow.	Pulse not particularly changed.
Frequently the stools contain no bile.	The stools are usually normal.

The differential diagnosis of "irritation of the capsule of Glisson" and "cirrhosis of the liver" will require some attention. Whilst it is generally easy, there are points of similarity which might be the means of leading the unguarded astray.

CIRRHOSIS OF THE LIVER.	IRRITATION OF THE CAPSULE OF GLISSON.
Is often the result of chronic interstitial inflammation.	Is not the result of chronic interstitial inflammation.
Intemperate habits very frequently cause cirrhosis.	Is not caused by intemperate habits.
Is found in males oftener than in females	Is found in females oftener than in males.
Is nearly always fatal.	Has not been known to be directly fatal.
Is frequently the result of syphilis.	Is not necessarily the result of syphilis.
All the general symptoms of acute congestion of the liver, together with those of gastro-enteric catarrh.	Seldom any marked symptoms of hepatic congestion or gastro-enteric catarrh.
Marked constitutional disturbance.	Little or no grave constitutional disturbance
Frequently there is ascites.	Never has been complicated with ascites.
Hæmorrhage from the stomach or intestines	Never have hæmorrhage from the stomach or intestines.
Enlargement of the spleen.	No enlargement of the spleen.
Digestive disturbance very prominent.	Digestive functions seldom disturbed.
As the disease advances the acute pain subsides.	As the disease advances the acute pain increases.
Jaundice in the commencement of the disease, but often more in the advanced stages.	Jaundice seldom is present, and if present at all is more apt to occur in the advanced stages.
Diminution of hepatic dullness in proportion to the contraction.	No diminution of the hepatic dullness.
Nodulated feeling of the surface of the liver	No nodulation of the hepatic surface.
Dry, harsh skin, with flabby tissues.	Skin not dry and harsh, and the tissues not flabby.
Often extensive ecchymosis and hæmorrhage from the mucous surfaces.	No ecchymosis, and never any hæmorrhage from the mucous surfaces.

Irritation of the capsule of Glisson might possibly be mistaken for hepatalgia.

The supply of nerves, however, to this organ, being scanty in comparison to its size, most of which are supplied from the solor plexuses, with a few branches from the pneumogastric, which follow the ramifications of the hepatic artery, would impress us at once, that it is an organ not particularly predisposed to neuralgic affections, and when present at all, will always be found in extremely nervous or hysterical persons, and most generally in females about the time of their menses.

This disease is so rare that Dr. Murchison says: "I do not remember to have met myself with an unmistakable example of hepatic neuralgia."[1]

Since hepatalgia is a purely functional disease, and occurs so rarely, when it does occur, a careful observation of the general appearance and history of the patient, together with the causes and symptoms of the two diseases, will readily enable the practitioner to diagnose between these two morbid conditions.

DURATION.

Irritation of the capsule of Glisson, if not arrested, may continue for months or even years, with a gen-

[1] Clinical Lectures on Diseases of the Liver, p. 485.

eral tendency to get worse—the attacks coming on more frequently and increasing in severity, with no tendency whatever to get well itself.

PROGNOSIS.

The prognosis of this disease is exceedingly favorable. Whilst it may linger for months, and in a few cases I have known it to continue for years, neither Dr. Craig or myself have as yet ever seen a fatal case. If, however, it is subjected to proper treatment, it usually subsides in a much shorter time—from a few days to a few weeks, under such treatment, the attacks come on less frequently, continue for a shorter time, and are much less severe each return, until they disappear entirely, and the patient returns to the enjoyment of his usual health.

On the other hand, I have seen these cases resist the most vigorous line of improper treatment for months, and even years, which yielded to suitable remedies in a few days or weeks, and have never had a return of the disease since.

COMPLICATIONS.

The complications which are most likely to occur with this disease are rheumatism, and occasionally malaria, although any of the diseases to which the liver is subject may be associated with it.

PATHOLOGICAL ANATOMY.

No fatal cases having occurred either in my own practice or in that of my friends, I have therefore, as yet, nothing to offer on the morbid anatomy of this affection.

TREATMENT.

I know of no disease which is more satisfactorily influenced by a proper treatment than the one we are now considering, and also know of none which is more tenacious when not properly treated.

The remedies which have given the most satisfactory results in this malady are alkalies combined with a bitter tonic.

The combination most frequently used by Dr. J. W. Craig, and one which I have found very satisfactory (excepting its disagreeable taste) is the following:

℞ Sodii bi-carb..... ℥iv.
Pulv. hydrastis can..... ℥i.

M.

S. Use a teaspoonful in two-thirds of a glass of water before eating.

If, however, there is a tendency to constipation, I have found the following to give prompt relief:

℞ Sodii sulph., C. P..... ℥v.
Hydrastia sulph..... gr. v.
Aquæ..... ℥iii.
Glycerinæ, q. s. ad..... ℥iv.

M. S.—℥i before each meal and before retiring.

Sodii et pot. tart. combined with infusion of gentian has given good satisfaction in some cases, or a Seidlitz powder before each meal, followed with a capsule of cinchoniæ sulph. and pepsin after eating, especially if there is any complication of malaria or gastric irritation.

My experience in the large majority of these cases has prejudiced me in favor of the first two formulæ, which indicate the general line of treatment I have been most successful with, but which must be modified to suit each particular case.

Where there are marked rheumatic complications good results may be obtained by combining the soda with salicylic acid (that made from the oil of wintergreen is preferred) or salicin, to which may be added the iodide of potassium and ext. of colchicum seed.

Mercurials, as a rule, are not well tolerated—in fact, they have always seemed to aggravate the disease every time I have used them in it.

All stimulants as well as condiments are better avoided, and the patient advised to live on a good nutritious diet, and eat regularly and take plenty of exercise.

Frequent baths of chloride of sodium or the hyposulphite of soda, followed with a brisk rubbing, will very materially assist the treatment, while active exercise should be speedily substituted for the sedentary habits generally practiced by this class of patients.

Frequently the physician is called in the midst of one of these severe attacks of pain, and is urged to give speedy relief.

This can be best accomplished by a hypodermic injection of an eighth or a sixteenth of a grain of sulph. of morphia. Hot fomentations, hot water bags or hot bricks applied over the hepatic region, assist very much in affording relief to the sufferer.

The use of anodynes, however, either internally or by hypodermic injection, should be suspended at the earliest possible moment, for they retard the improvement so desirable in every case.

In order to illustrate this disease, I will report a few cases, which may be fairly considered average cases:

Mrs. A., æt. 38. Had been married for ten or twelve years. Was a large, muscular, robust woman, and had always enjoyed good health. Had no children, and no history of ever having had a miscarriage. Had lived most of her life on a farm, but in late years had moved to town and engaged in dressmaking, which kept her closely confined early and late, with but little exercise.

Was first taken ill in 1877, and suffered very much for several weeks, so that she was compelled to give up her work, and returned home and went at housework. In a few weeks she had improved so much that she returned to the dressmaking again.

In 1878 she was taken ill again, and called on her family physician for relief. The persistence of the trouble compelled her once more to give up her sedentary habits, after which her health soon began to improve; but on returning to it was soon attacked more severely than ever, and feeling discouraged changed physicians.

It was evident from her description of the treatment that her former physician had been treating her for malaria. After she had taken treatment for some time with the second physician, it was evident that he too was not meeting with success, and the author was invited to see her, who was also led astray by the periodicity of the attacks which always came on at night.

Having ascertained that both her medical attendants had freely given her of mercurials and quinine

together with morphia to control the pain, and without any success, I was at once impressed that there was something peculiar about the case not yet observed.

When first called I found her sitting on a lounge "tailor fashion" with arms folded across the bowels, rocking to and fro and crying with pain which she located in her right side.

It was described as a burning, boring, lancinating distress, over the region of the liver. She informed me she had been feeling pretty well during the day, and had retired feeling comfortable; but in a few hours was awakened with this severe pain. She informed me she had been having these attacks almost every day of late, and that they were getting very much worse. I also learned from my patient that they did not come on with a chill, that her appetite was good and her bowels regular except when she took morphine to relieve the attacks of pain.

I found her pulse slightly excited, but otherwise normal, the tongue was moist and but slightly furred; no aching in the back or limbs.

I found she had been taking morphine so long that it had but little or no effect on her except in large doses, consequently I put her on an anodyne consisting of cannabis indica and hyoscyamus, and applied hot applications over the seat of pain, and supposing it to be of malarial origin, put her on quinia and arsenic.

On returning the next day I found my patient up and around her work and apparently well. I left her some rhubarb to open the bowels, ordered the anodyne discontinued and the quinia and arsenic vigorously pushed.

I obtained some urine for chemical and microscopic examinations, and suspecting gallstones, ordered the feces kept and carefully washed, with a view of capturing any offending material of that character.

On examination I found the urine quite normal, and repeated washings of the stools failed to reveal any gallstones, which increased my faith in the malarial hypothesis.

The second night following I was again called about midnight, and found her repeating the drama of the night before, only if anything worse, which, in spite of all my treatment continued to grow worse.

The case was examined and reëxamined, there was no jaundice, no enlargement of the liver, little or no indigestion, no headache to speak of, no chills, and no fever, or sweating except the perspiration induced by the severe pain, and still these attacks of pain kept on getting worse in spite of all my efforts.

I finally advised counsel and requested the family to call Dr. Craig, of Mansfield (the author was then a resident of West Salem, some thirty miles distant from the above place), who came in a few hours and diagnosed the disease an irritated condition of the capsule of Glisson—a malady which at that time the writer was not at all familiar with.

The doctor advised me to put the patient on sodii bi-carb. combined with pulv. hydras. canadensis, to be given in water previous to each meal; he advised the continuing of the hot applications when the attacks of pain came on, and if absolutely necessary some suitable anodyne until she could endure the attacks of pain without it. Under this treatment my patient made a rapid and complete recovery and now, over six years after, has never had a return of the disease since to my knowledge.

CASE II. Mr. B., æt. about 35, a saddler by trade, who was under the care of a neighboring physician for months, without any improvement, but rather grew worse. The doctor finally became discouraged and presented him as a clinical case at a meeting of the Northeastern Ohio Medical Association for counsel and advice.

Prof. D. B. Smith, of Cleveland, together with Dr Starr and myself, were appointed to examine his case.

Dr. Bucher stated that his patient was very greatly harrassed with periodical attacks of pain coming on after he had retired, almost every night.

He stated that his patient would work all day at his trade, but after retiring, would be awakened by a severe pain located over the region of the liver, of a burning, shooting character.

These attacks were progressive in severity and frequency until they were occurring almost every night, and were so severe as to deprive him of most of his night's rest.

On inquiry, he revealed no history of syphilis or intemperance, and none of malaria except the periodical nature of his attacks of pain, but lest there should have been some mistake in his history, Dr. B. said he had treated him at different times most vigorously for the first and last maladies, but without relief. He had searched carefully for gallstones in vain, examined the urine and found it normal, had given him liberal doses of mercurials, "in fact" (to use the doctor's words) "I have had him over the materia medica from beginning to end, and nothing I have given him has done him any good."

After a careful examination it was agreed on by the committee that he had "irritation of the capsule of Glisson," and accordingly he was put on the soda and hydrastis treatment, as previously described in this paper.

In a few weeks after I received a card from the doctor stating that his patient was feeling quite well, that he soon commenced to improve after putting him on the prescribed treatment.

More than a year after I met the doctor, who told me that the patient had made a complete recovery, and was now enjoying good health.

CASE III. Dr. B., æt 75, a clergyman, who had always been a close student, called on the writer in March, 1882, and gave the following history:

In December, 1881, he began to suffer some from distress, which he referred to the stomach, although the appetite remained fair; he informed me that he had been troubled more or less with distress up to February, 1882, when he discovered that eating lemons gave him relief, until about the first of March, when the burning pain commenced under the short ribs on the right side, generally coming on at night.

Notwithstanding he was under the treatment of his family physician, he observed this pain was steadily increasing, both in severity and frequency, until it came on almost every night; subsiding during the

day only to awaken him the following night, until it grew so bad that he decided to change his medical adviser and called the writer.

When I first saw him he was suffering intensely with a burning pain in his right side, which, after eliciting the above history, awakened my suspicion of the existence of irritation of the capsule of Glisson. This suspicion was increased when he informed me, he had been able to continue his clerical duties up to the present, although, as he said, he could rest but little on account of the intense agony he was obliged to endure at night.

On examination, I found the pulse normal and the patient free from fever, tongue moist, and but slightly furred, appetite good, stools about normal, and free from gallstones; there was slight constipation at times, urine but slightly changed; some tenderness over the liver, but not much, with very slight enlargement, no jaundice, although his complexion was at times somewhat sallow.

There was no headache or drowsiness, and he was free from backache, or pain in the limbs.

These symptoms, together with his history, confirmed my opinion as to it being a case of irritation of the capsule of Glisson I had to deal with.

I put him on sodii bi-corb. and pulv. hydrastis canadensis, to which I afterward added a tonic of gentian with an occasional laxative dose of sodii et pot tart, which was interchanged with an occasional vegetable laxative.

Hot applications were made over the liver during the attacks of pain, but did not resort to the use of anodynes.

In a few days I found my patient beginning to improve, the attacks of pain becoming less severe, and not so frequent; and in less than a fortnight I was enabled to dismiss him, feeling quite comfortable, the attacks having subsided entirely. He continued the use of the sodii and hydrastis, however, for a few weeks after he was dismissed.

I saw him a few days before I left home, and he reports never having enjoyed better health in his life, and has had no threatening of the return of the disease since.

Were it necessary, I might multiply these reports, but the above cases which have been selected as typical cases, and which have occurred along with many others, at intervals covering a period of six years, will serve to illustrate the disease I am endeavoring to describe.

In presenting this paper I do not expect to escape criticisms. I am fully conscious of its incompleteness, and regret my present inability to accompany it with more thorough and satisfactory investigations than those furnished.

This paper may, however, serve to call the attention of others to the train of symptoms herein illustrated, and that they may in this manner be ultimately properly explained.

THE COMMUNITY OF ORIGIN OF DIPHTHERIA, TYPHOID FEVER AND SCARLATINA.[1]

BY E. O. BARDWELL, M.D., OF MOLINE, ILL.

It will not be expected that the writer of a paper with the above title will be a warm advocate of the theory of specific germs in the etiology of disease, it would hardly be consistent for him to evolve a little germ for each of the three diseases from the same ultimate elements, even for the sake of effect.

I do not wish to be understood as disparaging or discrediting the immense value which the microscope has been, and still is, to scientific medical research, but it is well enough to remember that any valuable acquisition is easily and frequently overvalued by enthusiasts.

The presence in the air of minute organisms has been known for years. A century since, when the microscope was a mere plaything, Goethe in his inimitable work "Faust," made Mephistopheles say, "from air, water, earth, in wet, dry, hot, cold, germs by thousands evolve themselves, had I not reserved fire, I should have nothing apart for myself." The air is pregnant with minute life, and it seems easy to comprehend that disease or its elements being present it might be diffused by these floating particles without creating separate germs for the sole purpose of evolving or transporting each disorder.

According to the germ theory of disease a different form of bacteria, considered from a morphological standpoint, is essential to the causation of each disease of known bacterial origin. The three divisions of bacteria are, micrococcus, the granular forms; bacillus, rod-like in appearance, and spirillum which exists in the form of twisted threads, and is not conclusively proven to belong to the bacteria. Micrococcus is divided into many forms by the morphologist, as is also the bacillus, the mutability or stability of these different forms is not yet, however, thoroughly established.

In diphtheria, micrococci and bacilli are found in large numbers in the fauces, the former being the most constant in their appearance. Prof. Gradle, one of the latest writers on the germ theory, and an earnest advocate of its truths admits, however, that "*there is as yet no proof that these micrococci are the cause of the disease.*"[2] In fact experiments would seem to show that so far as known at the present time the presumptive evidence is all the other way.

In typhoid fever a bacillus has been found which has been held to play a part in causation, the most careful observers, however, have failed to find these bacilli in one-half of the cases of enteric fever examined. Koch was one of the observers, and he is probably the best bacillus hunter known at the present time, when we add to this the fact that in no well authenticated case has inoculation experiment propagated the anatomical lesion of typhoid fever in any animal; we must admit that the bacilli causing this disorder have not yet been demonstrated.

[1] A paper read before the Iowa and Illinois Central District Medical Association, April 10, 1884. Published by request of the Association.

[2] The Germ Theory of Disease. P. 186, 1883.

In scarlatina both micrococci and bacilli abound in numbers, but no one has shown by experimental cultivation their relationship to the disease.

There are a few disorders in which the causal relationship of bacteria has been apparently proven, but our three diseases are not among the number.

This paper deals with its subject and deduces its conclusions from a purely clinical standpoint, and the bacterial etiology has been alluded to merely to show that there is at present nothing positively known to refute the results logically arrived at from clinical data.

But whatever our opinion of the germ theory may be we must, I think, admit that improper sanitation plays an important part in the etiology of diphtheria, typhoid fever and scarlatina.

I shall present some facts and adduce some examples which appear to me to support the proposition that these three disorders owe their origin to a common source, that the same nidus may cause at one time the evolution of one malady, and at another time of a different one. What the peculiar predisposing force consists of which favors the production of one disease in preference to another, it is impossible to say, although various hypotheses with pages of text to support them might easily be written.

EXAMPLE No. 1. In northwestern Pennsylvania at the source of a small stream whose waters ultimately mingle with the Susquehanna, fifteen miles from a sewer, in a narrow valley is situated a lumber camp. Each season for four years prior to 1882 one or more cases of typhoid fever have been developed in this camp. In 1881 four men contracted the disease from which one died. In 1882 there were no cases of fever but two men were brought out ill with diphtheria, previously there had not been a case of the kind in the camp and the patients had not been within fifteen miles of diphtheria within a year.

Situated among the health-giving hills away from all modern improvements, here we have two of the products of civilization showing themselves "without any outside help."

Around this building the ground is soaked with refuse from the kitchen thrown out the door and windows; within two rods in one direction are placed the stables; about the same distance in another course we find a stagnant pool containing decaying vegetable and some animal matter; going up stairs we see twenty bunks ranged along either side of the low loft, about one foot apart, with a passage way slightly over two feet wide down the center; in these twenty bunks forty men sleep every night with the most of their clothing on. and still they live, some of them.

EXAMPLE No. 2. Eight miles from Emporium in a different direction is situated another camp, also in a valley. The foreman, his wife and two children did live four years ago in a small house built for their accommodation a few rods below the camp; a babbling brook ran by the door and the house seemed pleasantly situated. In the summer of 1880 one of the children contracted scarlatina without having been away from home or having had visitors for three months. In the fall of the same year both had diphtheria, from which the youngest died. The following spring the remaining child was taken with typhoid fever, and acting upon my suggestion the family moved to town; the girl recovered in three weeks and has since been well. The murmuring stream brought down with it much of the refuse from the camp above, and frequently overflowing its low banks, deposited a certain portion thereof in close proximity to the dwelling, which, surrounded by thick trees, was not in a favorable location for the mountain breezes to carry off the noxious vapors. The woods around the house containing decaying vegetation, would perhaps have some work to perform in the production of disease; tree trunks in all stages of decay, layer upon layer of decaying and decayed ferns, grasses and leaves, the accumulation of years, periodically soaked with water, would perhaps be liable to generate gases which would not be particularly conducive to human health. Be that as it may, the three diseases were developed there under these conditions.

EXAMPLE No. 3. Four miles from this last-mentioned locality lives a farmer with a wife and seven children. In 1880, four of the children had scarlet fever; in the summer of 1881 one of the children had typhoid fever; in the fall of the same year the oldest child, a girl of 16 years, contracted typhoid fever from which she died. Three months later one of the children who had not had scarlatina took it, and two months later one of the others was taken with diphtheria.

The house is situated on rising ground, the water supply is apparently pure, and the surroundings are in good sanitary condition. I had no idea there was a cellar under the house, as no indications of one were visible. However, after the last case I made an inquiry which I should have made long before, and found not a cellar, but a pit underneath the dwelling, ingress to which was through a trap-door from the kitchen, merely a hole dug in the ground and sided up with hemlock boards decaying from the moisture. No ventilation was possible, and although it was comparatively clean as such holes go, yet used as a place of storage for vegetables, its atmosphere was necessarily far from salubrious.

I pointed out the danger and advised Mr. C. to fill up the hole, and my advice was acted upon; this was in the spring of 1882, since which time there has been no sickness in the house.

EXAMPLE No. 4. Down a valley eight miles distant stands a saw-mill surrounded by laborers' dwellings. Usually one or more cases of typhoid fever are developed in this valley each season; during the year of 1882, however, there were no such cases, but in December and January following, diphtheria was prevalent in the neighborhood of the mill, 30 cases occurring during that time, with a mortality of six. About two months later scarlatina in a mild form made its appearance and continued several months.

The first case of diphtheria occurred in a house where I could discover no sanitary irregularities, but this house was only a few rods from another habitation where the next six cases occurred two days later, and the condition of this latter was such that I cannot hesitate to believe that the first case was caused

by contiguity to it. If diphtheria or scarlatina were imported into this locality they were brought in a very clandestine manner, and the carrier was extremely careful to drop no seeds on the way, as the two diseases were confined to this small area, about two miles long by one-half mile wide.

Example No. 5. A valley nine miles long reaches out nearly at right angles to the one just mentioned. There have been in this valley one or more cases of typhoid fever every year for twelve years prior to 1882, during which season there did not occur one case. In September, 1882, however, diphtheria broke out to the extent of 15 cases with 4 deaths. The disease in this instance made its appearance eight miles up the valley, in a house where the cellar was in a filthy condition from decaying vegetables and stagnant water; the force of the endemic was expended on a few families in this immediate locality. It is a fact worthy of note that there were no cases of typhoid fever in this valley in 1882 for the first season in 12 years; and that the evolution of diphtheria evidently consumed the material which under other subtile conditions would have been used in the production of fever. In neither of the examples adduced was the outbreak of diphtheria general enough in character to explain the absence of fever by saying that most of the people having one disease, they therefore enjoyed immunity from the other. In the valley just alluded to typhoid fever again put in an appearance in 1883.

Judging from these cases, I cannot arrive logically at any other conclusion than that these three diseases are originally caused by disregard of the laws of hygiene. Their spread after development is another question entirely, and one with which we have at the present time no concern more than to venture the remark that the innocent inevitably suffer with the guilty; the persons whose doors are kept clean suffer the penalty of allowing their neighbors to live in ignorance of plain sanitary laws: If improper sanitation is the primordial factor in the evolution of these disorders, then it is not so important to ascertain in just what form and by what means disease is disseminated, as it is to strike at the root of the evil, to annihilate the first cause, without which there can be no elements of disease to be carried about by the air, by innocent micro-organisms, or by distinct varieties of minute life created for this especial purpose. As practical physicians, it is not a matter of great clinical importance whether or no bacteria are really the causes of these diseases and filth the nidus for their development. No remedy is known which will kill bacteria in the system without killing the patient, but we can remove in some cases the causes of ill health, whether it is really due to bacteria or not. Some people can be taught the danger of unsanitary surroundings, but many more will learn only when compelled to do so. The physician can instruct to a certain extent, but his advice would have much more weight if it was known that compulsion might follow its disregard.

The only body to successfully manage the education of the masses on this subject would be a carefully organized Board of Health with practically unlimited power. When every town and hamlet has a health officer properly qualified and not afraid to do his duty, then will most diseases be lessened in severity, and in all probability some will disappear entirely.

A CASE OF URETHRAL ECTASIA.

BY C. C. FITE, M.D., NASHVILLE, TENN.

The description of a case of urethral ectasia or vaginal urethrocele by Professor Santesson in the *Nordiskt Medicinskt Arkiv*, which you reprint in the Aug. 16 number of the Journal prompts me to report a case of the same kind I saw in March of this year. I did not know that the condition was so rare or I would have put it on record at the time.

I had been engaged to treat Mollie H. for what she designated "Womb disease," and in making the necessary examination to ascertain the position and condition of the parts, I made the following discovery. In passing the finger a tumor was felt just under the urethral orifice, and she said at once, "There it is, that is the trouble, it don't hurt much to pass it or to have intercourse, but it pains me in walking and when I make water, and sometimes it takes a long time to pass it, and occasionally it dribbles away of itself."

Upon more careful inquiry she admitted that coitus was painful, unless they were careful, but as she was very fond of that amusement she tried to make no complaint.

She is a muscular, ordinarily healthy white woman 24 years of age; married at 15, has had two children, one born 10 months after marriage, and the second in 13 months from the first; has miscarried twice, about the third month, since that time. She had difficult labor with both children, but got through without instrumental interference. After the second birth she says she had "inflammation of the womb, and of the bladder, and the milk dried up."

There is no history of any other severe illness or disease of any kind.

She had been instructed to retain her urine for some hours before the examination, as I find it sometimes of value to examine with a full bladder, and then after it is emptied. A silver catheter was passed and went readily into the bladder, and on being partially withdrawn the point was turned down, and the nature of the trouble was clearly demonstrated. The catheter was again passed to the bladder, and the contents withdrawn. When the instrument was being released from the meatus she complained of a sharp burning pain which lasted some minutes, she said that it always pained her so after urination.

I was satisfied at once of the nature of the case, and explained that the uterus needed no special treatment (having used a modification of the Sims speculum, and completed the usual explorations and found only a slightly enlarged and heavy organ), and advised an operation to reduce the size of the distended canal.

She was opposed to this and would not consent to operative measures, but was "willing to have medicine put on it," so I made three applications a week apart, of a 20 gr. solution of nit. silver, to the relaxed membranes covering the sacky canal.

After the applications the vagina and vulva were packed with absorbent cotton which was retained six hours. I also ordered injections of claret and tannin, ℈i to f℥viii, twice daily. She reported herself as well two weeks after the last application, but as she is now living elsewhere I have not been able to verify the statement. I explained to her that the cure was likely to be only temporary, and that an operation would doubtless be yet needed as the dilated canal had only been braced up and not organically reduced to its normal size. The trouble dated from the second labor, and I suppose the protracted pressure of the fœtal head against the urethra must have caused the relaxation of its fibre.

MEDICAL PROGRESS.

SURGERY.

THE TREATMENT OF EPILEPTIFORM NEURALGIA.—Mr. W. J. Walsham (*Practitioner*) describes this disease as characterized by neuralgic paroxysms occurring in one or more branches of the fifth nerve, and always confined to one side of the face. The pain seldom lasts more than half a minute; begins at one spot, thence centrally spreads along that branch, and is radiated to the other branches of that division; or it may be transmitted to a second, or even to a third division of the fifth. A paroxysm may be determined by very various causes—speaking, eating, washing the face, a draught of cold air, a sudden noise, pressure on a certain spot, a fly settling on the beard—in short, anything, even of the most trifling nature.

In the treatment, nothing but nerve-stretching proved effectual. In the first case the infra-orbital nerve was stretched. The neuralgia was of ten years' duration, and for two years the patient was bed ridden on account of it. Three years after the operation she continued perfectly relieved. The second case was of nine years' duration, and the auriculo-temporal and inferior dental nerves were stretched, with complete relief to pain. The third case was one of relief from stretching the inferior dental, as with the fourth and fifth, the latter being a man 73 years of age, who had no bad symptom. The sixth case was a man 59 years of age, who had suffered for upwards of fourteen years, and had had the supra-orbital and infra-orbital stretched on various occasions. It was found impossible, from the matting of the tissues, to stretch them again. On careful examination it was determined that the pain really began in the gums in the region of the molar teeth, *i. e.*, in the posterior dental nerves, and shot upwards towards the back of the orbit. Meckel's ganglion and the whole of the superior maxillary nerve, from the foramen rotundum to where it emerges upon the cheek, were removed. There was no bad symptom, and there was no recurrence of the pain.

As to the operation itself, the modes of stretching the supra and infra-orbital nerves are well known. The inferior dental, Mr. Walsham thinks, is best exposed from within the mouth. The mouth having been opened by a gag, an incision through the mucous membrane only is made from the last molar tooth in the upper jaw to the last molar tooth in the lower. The finger is now introduced into the wound and insinuated between the ascending ramus of the jaw and the internal pterygoid muscle. The small spur-like projection of bone at the entrance of the inferior dental canal is next felt for, and serves as a guide to the nerve. An aneurism needle with a very short curve is now passed and hooked round the nerve, which can then be drawn visibly into the entrance of the wound. There are no important structures with the exception of the inferior dental artery and gustatory nerve in the near neighborhood. The latter is best avoided by remembering that whilst the inferior dental nerve passes into the bone the gustatory continues its course between the bone and the muscle, and is anterior and a little internal in its relative position to the inferior dental. Should the artery be wounded, it will probably be torn rather than cut, and therefore not likely to bleed, were it to do so, it is doubtful whether it could be tied.

The internal lateral ligament which is inserted into the spur-like process of bone, follows somewhat the same course as the nerve and may be mistaken for it. To avoid it the point of the aneurism needle should be made to hitch in the entrance of the canal, and thence swept upwards, backwards and outwards around the nerve, keeping the point close to the bone. The wound, if the operation is neatly done, is small, and heals kindly and in a few days.

In stretching the auriculo-temporal nerve the best guide is the temporal artery. An incision about an inch long should be made parallel and immediately posterior to the artery, beginning at just above the zygoma. Having carefully exposed the artery, the nerve will be discovered just below and posterior to it. The nerve being of small size the dissection must be done neatly, or it will not be found.

MEDICINE.

INVESTIGATIONS INTO THE PATHOGENETIC MICROBIA OF BLENNORRHAGIA.—Edouard Welander gives us in the *Nordiskt Mediciniskt Arkiv* the results of his studies of the *gonococcus* as described by Neisser in 1879. These microbiæ are easily stained by a solution of 1 to 2 per cent. of fuchsine, and they are easily obtained from the male urethra by pressing the glass against the meatus while expressing the pus with the fingers; with the female urethra it is not so easy, here the end of a canulated sound is introduced and pressed against the walls of the urethra while removing it.

The gonococci are colored a blackish brown by the fuchsine, the nuclei giving an intense red, and the

protoplasm a light red. They are found almost always in groups, never in chaplets, as often in the interior as external to pus cells, frequently in large groups about the epithelial cells, and sometimes free.

The writer has found them in 129 cases of acute blennorrhagia and 15 cases of chronic blennorrhagia in the male, and in 79 cases of purulent urethral secretion in the female, but has not found them in other secretions. In 25 cases of blennorrhagia (with gonococci) he was able to discover the persons who communicated the contagion and to find in them also the presence of the gonococci.

The attempts at inoculation with the secretions not containing the gonococci gave negative results. In 5 cases the secretion from fetid balanitis was introduced into the urethra, this secretion, which contained minute bacilliform microbiæ, did not have the slightest effect. The vaginal secretion charged with microbiæ of numerous different forms was similarly inoculated without effect.

In the urethræ of three men the vaginal secretion from a virgin 14 years of age was introduced. The secretion contained epithelial cells, spherical and bacilliform microbiæ—no result. A fetid and purulent secretion from the vagina, which contained a large quantity of bacilliform microbiæ with very active movement was introduced into the urethræ of 3 men without. In 3 women where the urethral secretion contained the gonococci, but the vaginal secretion was free from it, a considerable quantity of the vaginal secretion was introduced into the urethræ of 3 men without effect. One of these women was menstruating. At the same time there was taken from this woman a very small quantity of the urethral secretion containing the gonococci and introduced into the urethra of a man, with the result that at the end of 2 days there was a urethral discharge from the urethra containing the gonococci with epithelial cells, and on the 3rd day he had blennorrhagia with great masses of the gonococci. An identical result was produced by the inoculation of the urethral secretion of the two other women. A small quantity of the urethral secretion containing the gonococci produced a blennorrhagia in the same subjects in whom it had been possible to introduce a large quantity of the vaginal secretion, free from gonococci, of these same women without results.

While these results are strongly in favor of the pathogenetic nature of the gonococci, they do not furnish the scientific proof of their nature. To establish that it will be necessary to cultivate and inoculate these microbiæ, which cultivation is very difficult, and they cannot be inoculated upon the lower animals.

Welander found the gonococcus in men not only in the urethral secretion, but also, in 4 cases, in periurethral abscess, once in a lymphangitis which had been converted into an abscess, and where the purulent secretion, of several months' duration, from the extremity of the lymphatic cord contained the gonococci.

The presence of the gonococcus in the vagina was only determined 10 times; in 4 cases the vaginitis was acute, in all the others, subacute with purulent secretion. The cervical secretion, which was more or less purulent, was frequently examined in prostitutes, without showing the gonococci. But of 163 women—not selected, in 79 gonococci were found in the urethral secretion.

The clear secretion from the glands of Bartholin was examined in twelve cases. No gonococci were found, but other microbiæ were present. In 5 cases of acute bartholinitis no gonococci were found, although 3 of the women had them in their urethræ. In two women suffering from fistula the result of bartholinitis, gonococci were found in the secretion coming from the fistulæ, they also had gonococci in the urethræ. In 21 women who suffered from a purulent discharge from the excretory canal of the gland of Bartholin, the gonococci were found in each case. All these women except one had these microbiæ in their urethræ. The fact that the gonococci are frequently found in the gland of Bartholin and in its excretory duct, is of great practical importance. This makes the possibility a very strong one that a woman suffering from this affection would communicate blennorrhagia in coitus—while a woman who has the gonococci in small quantity in the urethral secretion is much less dangerous.

Cancer of the Pancreas.—M. Babbillon reports (*Le Progrès Médical*) a case of cancer of the pancreas in a man who was in a state of extreme emaciation and suffered from cough for two years, but for three months before death he had a gradually increasing difficulty in retaining food in the stomach; there was no vomiting, but an almost immediate regurgitation of the food taken. Habitual constipation, retracted abdomen, epigastric region painful to the touch, with a doughy feel. Other symptoms negative.

The autopsy showed tuberculous deposits at the summit of both lungs. There was a vast aneurismal dilatation at the arch of the aorta, which was dilated throughout its thoracic portion and full of stratified clots. At the epigastrium was a carcinomatous mass as large as the fist and developed at the expense of and about the stomach. It was immediately to the left of the cardiac orifice, and had invaded the lymphatic ganglia. The pancreas was stuffed with carcinomatous deposits, of which one, that was quite voluminous, when cut into gave out a puriform fluid. There was also a lobulated cyst at the inferior border of the pancreas.

This case is of interest in several respects: In the first place, the aortic aneurism remained entirely unrecognized during the lifetime of the patient; probably the dilatation of the thoracic aorta, which ceased suddenly at the diaphragm, was in part due to the compression exercised on it by the carcinomatous abdominal mass. Secondly, by the absence of all vomiting and the existence of alimentary regurgitation, which allowed of a diagnosis locating the cancer at or near the cardiac orifice of the stomach; and thirdly, the presence of cystic and carcinomatous degeneration of the stomach without any glycosuria during life.

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JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
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SATURDAY, AUGUST 30, 1884.

GASTRIC DILATATION.—At a recent meeting of the Société Medicale des Hopitaux, M. Bouchard gave some interesting conclusions based on an analysis of 220 cases of dilatation of the stomach. As he found that it is associated with chronic disorders in sixty per cent. of the cases, it is but natural that it should often be masked by a variety of symptoms pertaining to the concomitant disease. It is the more apt to be overlooked, since it is not always manifested by dyspeptic disturbances. M. Bouchard divides ectasis of the stomach into "enteric, dyspeptic, hepatic, renal, cardiac, cutaneous, rheumatic, consumptive," according to the prominence of the phenomena. Furthermore, he regards the disorders, which are expressed by these diverse groups of symptoms and which complicate the malady in question, as its result, though the connecting link is not always easy of discovery. That dilatation of the stomach may lead to many of these conditions, particularly dyspeptic, enteric, cutaneous, etc., is not unreasonable; but it seems to us somewhat injudicious to attribute "cardiac lesions," unless indeed they be functional, to gastric distention. In the abstract of his paper, which alone we have seen, the nature of the lesions which he designates "cardiac," whether organic or inorganic, is not stated, but, if he means the latter, we have no desire to dispute him. On the other hand, if he refer to organic heart disease, may he not have committed the fatal error of confounding it with an accidental concomitant or of mistaking cause for effect. A recognized result of heart disease, in particular of mitral lesion, is congestion of the abdominal viscera; and in the case of the stomach, this is sooner or later manifested by impaired digestion. The food undergoes fermentation, fatty acids are evolved, and the patient suffers from distressing flatulence and eructations. If this evolution of flatus continues in this distensible organ day after day, as it must inevitably do, gastric dilatation would be a natural consequence. Hence, contrary to Bouchard's statement, a dyspepsia, itself the effect of a cardiac lesion, would cause the dilatation, and not the latter cause the indigestion. However this may be, we fail to appreciate how distention of the stomach can do more than functionally derange the heart.

The diagnosis of this stomachic disorder is determined, according to Bouchard, by the detection of a "*bruit de clapotement*," a succussion sound upon percussing the organ below an imaginary line connecting the last rib of the left side with the umbilicus.

Dujardin-Beaumetz criticised this justly as being scarcely reliable, even if practiced after a state of fasting or the ingestion of liquids. Ziemssen, who enjoys a great opportunity for the study of this condition among the inordinate beer-drinkers of Munich, where it is of frequent occurrence (though we do not mean to trace a connection between it and the habitual consumption of a large quantity of beer) says the only absolute method of determining ectasis of the stomach is to distend the organ by means of carbonic acid and then outline it before the gas escapes. This is easily accomplished by administering separately bicarbonate of soda and tartaric acid in solution. Thus distended the stomach emits a highly sonorous percussion note and can be easily outlined. Indeed, in marked cases the organ can often be seen as a huge tumor which then does not even need to be percussed. This procedure occasions the patient some temporary discomfort, and after a few minutes, the ejection of the contents of the stomach, but is entirely harmless.

IRRIGATION AND EPURATION OF SEWERAGE.—We make no apology for having occupied a part of the space allotted to proceedings of medical societies in several preceding numbers of the JOURNAL, with the very interesting and important paper of Dr. Barnes and the discussion thereon in the Section on Practice of Medicine and Hygiene of the Suffolk District Medical Society, Mass. The subject there discussed, namely, how best to dispose of the excretions and refuse necessarily accompanying the aggregation of human beings into families and communities of fixed location, is perhaps the most important of all the sanitary problems that are now demanding the atten-

tion of the profession. The progress of civilization has demonstrated no one thing more clearly, than that soil and water contaminated by the presence in them of such excretory and refuse matter, are capable of engendering several of the most distressing and fatal diseases we have to encounter. And yet such contamination has commenced, and is progressively increasing wherever the excretions and refuse are either deposited in cesspools, sunk in the soil, or turned through sewers into the neighboring waters, whether of brook, river, lake, or sea. The evil has chiefly attracted attention in connection with the sewerage of cities and manufacturing towns, but it exists to a greater or less degree wherever human beings become permanent residents.

It would be easy to find thousands of isolated farm houses resting upon soil impregnated with the drippings of the kitchen, the cesspools, and the barnyard, and in which typhoid fever, diphtheria, scarlatina, etc., are almost annual visitors! [See the examples given by Dr. Bardwell in his paper in another part of this JOURNAL.] If it is true, as claimed by Dr. Barnes, that the only effectual mode of rendering sewerage material innocuous and preserving the purity of water and soil, is to use it for the irrigation of either forests or cultivated lands, where it is effectually epurated in nature's laboratory, and its materials appropriated for vegetable growth, the sooner the work is begun in that direction, both in cities and rural districts, the better it will be for human health, prosperity and life. It would be a comparatively easy task for a large proportion of our farmers and inhabitants of villages, to turn all the contents or drippings of the cesspools and barnyards, through drainage pipes to neighboring cultivated fields where it would increase the harvest in the very act of undergoing effectual epuration.

The subject is worthy of a large share of the attention of the American Public Health Association at its meeting in St. Louis the approaching autumn. For, say what we please about the seeds or germs of disease and the laws of their diffusion, it is certain that none of them thrive well in pure air accompanied by pure water and a clean soil.

INTERNATIONAL MEDICAL CONGRESS.—The meeting of this organization at Copenhagen, having closed its sessions, is described by correspondents as having been highly satisfactory in all respects. The number in attendance was not so great as in London, three years previously; but the papers read and questions discussed were of general scientific interest and practical value. The invitation given by the American Medical Association, through its delegates, to hold the next meeting of the Congress in Washington, in 1887, was accepted. And it will be both the duty and the pleasure of the profession in this country, to make such preparations as will render that meeting equal in all respects, if not superior, to the one held in London in 1881.

PROGRESS OF CHOLERA.—We have nothing new to record in regard to the progress of cholera in Europe. At latest dates no new cases had occurred in Geneva, and the advancement of the season renders it probable that the scourge will this year be limited mostly to its present boundaries. The early refugees from Toulon and Marseilles are returning in great destitution; and as the disease still exists in both cities, many of them will be likely to become its victims.

In a previous number it was noticed that the cholera had appeared on a vessel bound for St. Lucia and New York. The vessel was cleared of its sick and disinfected at its first stopping place, and has since arrived off the harbor of New York, and is reported to be without sickness, and in a good sanitary condition.

DR. JOSEPH JANVIER WOODWARD, Surgeon U. S. A., and one of the ex-Presidents of the American Medical Association, died on the 17th inst., of disease of the brain, from which he had been suffering during the last two years. His connection with the Army Medical Museum and the Medical History of the Rebellion, together with his high scientific attainments, had caused him to be widely known and highly esteemed by the profession, both at home and abroad.

For a more full and interesting biographical sketch of the deceased, we refer to the Necrological department of this number of the JOURNAL.

TRANSFUSION OF BLOOD.—Under the head of Medical Progress, on page 188 of No. 7, Vol. three, of the JOURNAL, in stating the quantity of blood transfused in the case under consideration, the writer gives the expression "215 grammes (37 fl. oz.)." Of course, 7 fl. oz. are meant, instead of 37.

PRESIDENT OF THE BRITISH MEDICAL ASSOCIATION.—At the recent meeting of the Association in Belfast, Dr. W. T. Edwards, of Cardiff, was elected President for the ensuing year, and that city selected as the place for holding the next annual meeting.

THE American Association for the Advancement of Science is to hold its next meeting in Philadelphia, commencing Sept. 4, 1884. A large number of the members of the British Association are expected to be present.

RESIGNATION.—Dr. John C. Fisher, one of the most prominent members of the Marine Hospital Service, has tendered his resignation to take effect Sept. 30, 1884.

SOCIETY PROCEEDINGS.

CHICAGO SOCIETY OF OPHTHALMOLOGY AND OTOLOGY.

APRIL 8, 1884.

Dr. Boyer was unanimously elected a member of the Society.

Dr. Holmes then referred to a case, in which he had recently removed a splinter of steel from the vitreous humor by means of a Gruening's magnet. The incision in the sclerotic, through which the magnet was introduced, was made behind the ciliary region, in the temporal portion of the globe, although the foreign body could be seen lying in the vitreous, near the equatorial region of the opposite hemisphere.

The lens was so far cataractous that the metal could not be precisely located, either by oblique illumination or by the ophthalmoscope. Dr. Holmes believed the end of the magnetized probe could in this way be brought near the steel with less violence to the edges of the wound of the sclerotic, choroid and retina, than if the wound had been made in the nasal portion of the globe. In a case in which the lens being intact, the metal could be exactly located, it would be desirable to introduce the magnet as near the foreign body as possible, although the reporter thought there is liable to be more hæmorrhage from the conjunctiva at the inner than at the external angle.

The doctor thought that a crucial incision through the sclerotic, although advised, is objectionable, and called for the opinion of the Society as to the relative advantage of the various kinds of incision.

Dr. E. Z. Gardiner thought a crucial incision would expose the eye to greater danger than a long linear incision, in the latter case there being but two instead of four flaps.

Dr. Montgomery expressed a similar opinion.

Dr. F. C. Hotz also advocated the linear incision where the other was not an absolute necessity, and in this connection reported the following case :

Piece of Steel in Vitreous. August 29, 1882, I removed a piece of steel from the vitreous chamber with Gruening's magnet, under conditions which proved a very good result as to the preservation of the sight. The steel entered through the sclerotic on the previous evening. Except the minute cut on the sclerotic six millimetres from the nasal border of the cornea, there was nothing abnormal with the eye. With the ophthalmoscope a lanceolated body was discovered suspended in the vitreous, just above and behind the centre, it presented a bright, shining, silvery surface, and looked very much in shape as a diminutive silver fish turned downwards. A few dark streaks extended from the body to the sclerotic wound; otherwise the vitreous was clear. The fundus showed no lesion. The sight, I am sorry to say, was not tested. Under chloroform the scleral wound was enlarged horizontally to 2½ millimetres. The edges were held apart with fine hooks. Gruening's magnet introduced, on the first attempt the steel was brought out. It was 6 millimetres long, 1½ millimetres broad, tapering off to sharp points, and weighed 20 milligrammes. The wound was closed up by a conjunctival suture, and the patient put to bed with both eyes bandaged. He was kept in bed in a dark room a whole week. No unfavorable reaction followed, but he could only count fingers at six feet. With the ophthalmoscope I discovered no disturbance in the vitreous, except two dark streaks from the wound to the centre, and an opaque transverse streak in the fundus, above the papilla. During the second week the lower portion of the vitreous became very cloudy, and the opaque stripe in the fundus developed into a distinct retinal detached fold.

Later the obscuration of the vitreous consolidated into several separate clouds, between which portions of the fundus could be seen. Some parts of it appeared normal; in some the retina was distinctly detached, and in some it seemed that the retina was separated from the choroid by a thin layer of serum.

The patient was under observation three months. No material changes took place, and the sight did not improve.

Dr. E. Z. Gardiner then read a paper entitled Detachment of the Retina.

After reporting a case of extensive detachment of the retina, in which total re-application of the detached membrane took place, remaining *in situ* for two weeks, and then, without any perceptible cause, becoming detached again, the lecturer said :

The literature on the etiology of detachment of the retina is so extensive that the scope of this paper will not permit me to mention all that has been written on the subject, but I will endeavor to record with the extension that they deserve the theories which now seem to be most in favor.

For the sake of clearness, these theories may be divided into three groups :

The authors whose theories are comprised in the first group, claim that it is a fluid secreted by the choroid which, accumulating under the retina, produces the detachment.

Those comprised in the second, that a lack of elasticity in the retina as compared with the choroid and sclerotic, is the immediate cause.

In the third group are those who look on a shrinkage of the vitreous as the direct cause of detachment.

Among the latest articles on this subject I will mention that of Prof. Kara, who thinks that in a partial elongation of the choroid a distention of its elastic layer, and also of its hexagonal epithelium, takes

place. The sclerotic also becomes thinned, at this portion of the globe. This thinning of the membranes favors, according to him, the filtration of the lymph contained in Schwalbe's spaces, and facilitates its accumulation between the choroid and the retina.

Boucheron, in a recent communication to the Congress of Rouen, introduces in the pathogenesis of the retina, the latest theories advanced by the physiologists about the secretion of the intraocular liquids. He claims that the choroidal epithelium is the secreting element. When this secretion is excessive, it accumulates behind the retina and detachment is produced. As causes of this hypersecretion he mentions affections of the kidneys, rheumatism, etc.

Dr. Galezowski, in an exhaustive article published in the *Recueil D' Ophthalmologie*, claims that a circumscribed choroido-cyclitis is the cause of detachment, but that a previous liquefaction of the vitreous must necessarily exist, before a detachment takes place. To prove his theory (advanced first in 1873), he reports several interesting cases, and then appends a very instructive table of 649 cases—of these, 598 happened in myopic eyes; 51 in cases of hypermetropia and emmetropia. In 131 cases only could a rent be detected in the retina. In 120 he observed floating opacities in the vitreous. This author thinks that the presence of floating opacities in the vitreous is a sign of perforation and tearing of the retina.

Of those who look on the pathological changes of the vitreous humor as the direct cause of detachment of the retina, Henri Muller should be first mentioned. In 1866 he made the assertion that in certain cases detachment of the retina was caused by shrinkage of the vitreous. Previous to this date, however, he had called attention to the fact of the vitreous possessing the property of diminishing in volume, through a process of shrinkage which could end in a detachment of this humor from the retina. The first histological investigations in this interesting phenomenon were made by Ivanhoff. Prof. Leber read before the Ophthalmological Congress at Heidelberg (1882) a very instructive paper, in which he explains the detachment of the retina by the so-called perforation theory. By this theory, the frequent phenomenon of sudden detachment of the retina without a perceptible change in the tension of the ball, is explained. The primary cause of the detachment is a localized alteration of the vitreous in contact with the retina, consisting in hypertrophy of the radial fibres, formation of fine bundles of connective tissue, which in the process of contraction exert a traction upon the retina, which produces a solution of continuity in the membrane, thus allowing the degenerated and liquefied vitreous to pass between it and the choroid. In this process there is simply a change of locality of the fluid from the inner side to its outer—consequently there is no cause for an increase of tension.

Leber bases his theory upon the evidence brought to light by the examination of 27 cases of detachment, seen by him during the last two years, of these 15 were "fresh" cases, from a few days to two weeks duration. In 11 of these a perforation was demonstrated, in one it was suspected, while in the remaining three its existence could not be proven, neither excluded. In long-standing cases perforations were not seen as often. In 12 cases, lasting from ten months to ten years, a perforation was found only in 3 cases. In 4 its existence seemed very probable—not found in five cases. Summing up the 27 cases, a positive result was reached in 14—doubtful in 4—negative 8. We have now reviewed in a succinct manner the theories advanced to explain the causes of a disease with which we are unfortunately too familiar. But wherein lies the truth, is hard to tell. All the theories are made so plausible, by their propounders, that one is tempted to accept them as the truth and turn away from that uncomfortable state of mind which to uncertainty is inherent. But unexpectedly some clinical fact jumps into the field and overturns the whole theoretical structure, leaving us in the same perplexing situation from which we started. The truth is, although it may pain us to confess it, that the etiology of detachment of the retina in myopic eyes, still remains shrouded in mystery.

In the selection of a theory we should be guided entirely by clinical experience, for I believe that a clinical fact is worth more than a hundred theories. Experimentation is worth but little in this line of investigation, because the process to which an eye has to be submitted in order to bring about the condition which we find present in highly myopic eyes, is such that it renders the results untrustworthy. We know that foreign bodies thrust into the eye experimentally or accidentally will, through a process of inflammation and subsequent shrinkage of the vitreous, detach the retina, but this fact cannot explain the cause of detachment in myopic eyes where absolutely no traumatism has existed. I performed a number of experiments in pigs' eyes, but here also the results were unreliable, not only on account of the post-mortem changes which had taken place, but also because the condition of the vitreous is entirely different from that found in highly myopic eyes, and in attempting to render it liquid, or withdraw a portion of it, or inject, or rather attempt to inject, fluid under the retina so much traumatism is necessary that reliable results are nearly impossible. Experiments may and do cast a little light upon the matter, but it is not sufficient to enable us to draw any positive deduction therefrom. Relying entirely on the clinical test, let us by its light examine these theories.

The theory of subretinal effusion can explain certain varieties of detachments of the retina, if a preexistent diminution in the volume of the vitreous is admissible. In a gradual detachment this theory explains matters in a satisfactory manner. But in a sudden detachment, it does not. I can not conceive how a vitreous, partially liquefied or not, should, as if by magic, decrease sufficiently in volume, to allow another fluid to exude into a chamber limited by a resistant lining and to do this *without increasing at any time the tension.* This is contrary to all physical laws, and when we remember that the tension, far from being increased, is diminished, the conclusion forces itself upon our minds that we must look elsewhere for a more satisfactory explanation. We do not find it I think in Von Graefe's theory, in which

the trouble is ascribed to a lack of elasticity of the retina as compared to that of the choroid and of the sclerotic. This theory does not stand the clinical test, for how can we admit this lack of elasticity in a membrane which gives such strong evidences of the contrary in its inflammatory conditions. Let us now turn to the theory based upon the shrinkage of the vitreous as a cause of detachment of the retina. Before entering fully into the matter I will endeavor to explain the reason why the posterior portion of the vitreous in highly myopic eyes where sclerectasia posterior exists, is found to be in a fluid degenerated condition, and also why in such eyes there is a tendency to shrinkage of the vitreous.

The experiments performed by Max Kneis, show that the vitreous receives its nutrition from the choroid; the liquid lymph passing through the retina, the external layers of which it also nourishes. At the posterior pole, according to this author, the nutrition is very slight, owing to the greater thickness of the retina at this place. As the retina becomes thinner, the amount of fluid which passes into the vitreous is larger, and it reaches its maximum, at the most anterior portion of the choroid. Now if in the physiological condition the nutrition of the posterior pole is very meagre, it is but reasonable to deduct that if the choroid at this point is degenerated the nutrition will decrease in proportion to such degeneration, reaching at last a point where the secretion of lymph is so poor that it lacks the power to constitute healthy vitreous humor. In this manner the liquefaction of the vitreous at the posterior pole of highly myopic eyes mentioned by Alt is easily explained. But even if the theory of Max Kneis is not accepted and we admit that the vitreous receives its nutrition only from the anterior portion of the choroid, the ciliary body, then too if there is a lack of nutrition, the first part to suffer will be that further removed from the source of nutrition, in other words, that portion of the vitreous nearest the posterior pole. It is a fact that highly myopic eyes in which degeneration of the choroid or sclerectasia posterior is present, are not healthy, and the liquefaction of the vitreous is a proof in itself of the poor nutrition it has received, be its source from the ciliary body or from the whole choroid. The natural consequence of poor nutrition is shrinkage, diminution in volume, atrophy, etc. These premises once accepted, we find that Leber's theory will explain in a satisfactory manner the phenomena which take place in detachment of the retina, a shrinking vitreous in the anterior portion of which a radial formation exists, (Leber). The adhesions formed by a diseased vitreous, at those points where it is still in contact with the retina, a liquefaction of the vitreous beginning at the posterior pole and gradually advancing toward the anterior portion of the eye, are the immediate cause of the catastrophy which only needs one step more to take place. The traction on the retina increases as the shrinkage progresses, thus giving rise to the metamorphopsia and other prodromic symptoms. The continued traction or a sudden jar overcomes the resistance of the already strained retina; it tears, the liquefied vitreous enters behind the membrane, and the detachment is effected. Dr. Galezowski, in his excellent article above referred to, states that he only found a rent in the retina in 131 cases, and that floating opacities were seen in but 120. He, therefore, claims that the presence of floating opacities in a case of detachment of the retina points to the existence of a rent in this membrane, and *vice versa*, that the absence of these opacities is a sign that no tearing has taken place. This statement does not bear the clinical test, however, for we all have seen cases where floating opacities in the vitreous long precede detachment of the retina. The simple fact that the rent could not be seen does not, in my opinion, prove that it did not exist, for it might well happen that it was so situated that it could not be seen—indeed, I believe that in many cases they escape notice because they are so located that the folds of the detached retina entirely hide it from view; and furthermore, it is not at all necessary for the solution of continuity to be large. The retina tears in a manner very similar to thoroughly soaked blotting-paper, as I have been able to convince myself by tearing the fresh retina under the microscope. There is a moment before the regular separation of parts takes place when a liquid can easily penetrate through it, and as the moment that the retina becomes detached the traction from the vitreous ceases, the rent may remain stationary and not acquire such proportions as to render it visible with the ophthalmoscope. I do not consider the case which the same author reports, in which a small opacity was seen engaged in a perforated retina, working its way into the vitreous, as a proof that the opacities are formed only in the subretinal fluid. There is another form of detachment of the retina, the etiology of which is made by the theory of shrinkage of the vitreous, viz.: detachment in folds. In this form the subretinal effusion theory utterly fails, for a liquid secreted under a membrane which is equally throughout would naturally expand in a circular form. The detachment would, therefore, commence at the centre of the figure and gradually creep on to the periphery. On the other hand, nothing is easier to account for than a fold being raised by a traction exerted from within. The process can be easily demonstrated, even in eyes where the vitrous is not degenerated, by introducing a very fine pair of forceps into the vitreous chamber, firmly closing them and gently withdrawing them. In this manner I have been able to produce beautiful specimens of detachment in folds. I am perfectly aware that this theory does not answer in every case, and the clinical history of certain cases will militate against it; but I firmly believe that in those cases of detachment of the retina happening in highly myopic eyes, the immediate cause is the traction exerted by a degenerated and shrinking vitreous, and no other theory that I know of can explain in a rational manner one of its most constant phenomena, viz., the suddenness of the detachment. Neither can any of the other theories explain in a rational manner how there can exist a fluid behind and another in front of the retina, without a perceptible increase of tension.

This paper called forth a long discussion on the merits of pilocarpine treatment. Almost every mem-

ber had given this remedy a trial, and all were unanimous as to its inefficacy in producing a permanent cure.

Dr. Montgomery exhibited a new self-registering perimeter, by M. Blitz (Upsala). It is fixed to the back of the chair in which the patient sits. The test object is carried by a bent arm coming from behind, and is suspended before the patient's eye.[1]

BOERNE BETTMAN, *Sec'y.*

CHICAGO MEDICAL SOCIETY.

A THEORY OF THE CHOLERA.

A paper read before the Chicago Medical Society, August 18, 1884. By John Bartlett, M.D., Chicago, Ill.[2]

MR. PRESIDENT:

At the last meeting of this Society, in referring to the cause of cholera, its methods of advance, mode of spread, etc., it was manifest that a radical difference of opinion prevailed as to these features of the disease. While it must be admitted that the knowledge of the cholera is very imperfect, it may yet be of interest and profit to frame some theory of the disease which shall conform to every known fact regarding it, and which may offer explanations of the phenomena of the disorder as satisfactory as the limited knowledge of such subjects will in the present state of science admit of. Such a theory is of value, if simply as a framework which may hold together in an apparently perfect order and relation, a large number of fragmentary facts which might be lost to the mind if allowed to lie detached and disconnected.

I have accordingly presumed to set before you tonight what I conceive to be, such a theory of the disease, taking occasion to follow the method of induction so far as to erect the theory upon a trestle work of facts, assumed to be analogous, drawn from other departments of observation.

Events are occurring about us similar in many particulars to the rise and spread of epidemic diseases. One of the most striking of these, perhaps, is the prevalence of that plague to vegetation, the army worm. The laws of this pest have something in common with those of cholera. Thus the cause of the army worm is always present in, and indigenous to, certain localities favorable to its development, life and methods of propagation. Appearing yearly in these habitats it spreads occasionally, and with some show of periodicity over extents of territory far beyond its normal limits; and these periodic eruptions frequently cover vast areas of territory, carrying devastation over continents. In this march outward from the nidus of development, pushing onward, and further onward, by somewhat regular, yet occasionally interrupted stages, the army worm resembles an epidemic of disease in its mode of approach to a place, its gradual attainment of an acme of destructiveness, and final abatement. Thus the army worm millers indigenous to certain marshy lands of the South, in the year 1861, sallied from their haunts in illimitable swarms and deposited their eggs in suitable places and at a suitable period of the growth of early vegetation in every county from the Gulf to the Lakes. These eggs lay dormant until stimulated by the warm weather. Then, apparently, starting from its habitat at the southward, began the northward march of the army worm which overran the country. It was because of the fact of the apparent onward march of the countless hosts of these invaders that they received the suggestive name of the "Army Worm." And yet their march was only apparent. They moved only from field to field, as other insects for the purpose of forage. They advanced northward only as the peach blossom advances northward, their march kept pace with the increment of heat of the advancing season necessary for the development of the long-deposited egg. The line of their advance was an isothermal one.

Thus the worms keeping pace with vegetation, appearing when the winter wheat was "in the milk," advanced toward the north slowly, so that they appeared in Maine two months after they were first seen in Missouri. After several weeks the destroying agents disappeared. They had not moved on to other conquests, as people supposed, but the worm, disappearing under the sod, had become a chrysalis, which in a few weeks emitted the miller, which deposited its eggs, and thus completed the cycle of the insect's life. In the above reference to the army worm invasion it was assumed by some that the whole field devastated had been sown with the germ of the plague the previous season. Observation of the insect indicated, however, that it passed through its phases within a few weeks; and it is probable that the visitation was not thus sown broad-cast and at one time; but that the invasion was by the gradual encroachments of successive "crops" of the worm; so that the insects marching northward into Michigan were not "cotemporaries," but the descendants by several removes of those which weeks before invaded Southern Illinois. Thus a brood of worms, disappearing in the northern counties of Mississippi as chrysalites, were represented in a few weeks in Middle Tennessee by millers attracted northward in search of early vegetation suitable as nidi for their eggs. The crop of moths from these eggs would in turn desposit their ova in Kentucky, and so the advance northward would be effected not by the worms, but by that element of the insect floating in the air and endowed with power of swift flight, and with selective instinct. In regard to the continuance of the recurrence of these insects it is essential that the several elements find suitable resting surfaces and conditions (of temperature, moisture, etc.), and in the lack of these the element may perish, or may remain inactive for an indefinite period, till conditions occur requisite to arouse it to development. Thus in the latitude of St. Louis, with favorable conditions two

[1] For a more detailed description, we refer the reader to the *Centralblatt für prakt. Augenheilk.*, August, 1882, p. 251.

[2] The interesting paper of Dr. Bartlett herewith presented, will be read with more satisfaction and interest, if it be known that the illustrations made use of, "Army Worm" and the "Marsh Fungus," have been carefully studied in the field by him. As long ago as 1861 he wrote a paper on the "Army Worm," the first paper ever written and published. See Dr. Smith's (State Entomologist of New York) report 1861. The author's experience with the cholera has also been ample. And with this annotation, the paper is submitted to the editor of the JOURNAL for publication. L. H. MONTGOMERY, M.D., Sec.

or three broods of the worm were hatched in one season, while in Maine a second brood did not appear. Injury to crops wrought by secondary broods in one locality was comparatively limited. The new worms were preyed upon largely by enemies now come into the field, and material suitable for their sustenance was scarce, in good measure exhausted by the depredations of their predecessors. Finally, the miller of the army worm, "winters over," and deposits its egg at the appearance of vegetation in the spring.

By accident or design the insect in any of its phases could be transported to any distance; and as a miller it might be readily carried by the wind.

Dr. Koch, the noted microscopical investigator of the causes of disease, believes that he has discovered the actual entity producing the cholera in a fungoid cell, the "comma bacillus." As yet no more is known of this bacillus than its bare existence. It has a natural history, but the laws of its development and changing growth are yet to be learned. In the absence of such knowledge we may assume that it has certain phases of development as the army worm has, and that in each one of these it presents different potentialities. In relation to certain fungoid cells, the fact of such phases of existence are ascertained, and from analogy it may be inferred that the comma bacillus, after a period of active growth, develops into an apparently lifeless formed material, a crystalline substance, bearing, for illustration we may say, the same relation to the cell as coral does to the insect which forms it. This crystalline substance is not dead but living matter, and after a period of passivity, under favoring circumstances it puts forth buds, which presently burst and emit into surrounding media a protoplasmic fluid in which in time are developed the cells, thus completing the cycle of changes in the life of the plant. The peculiarities of the several elements may be thus stated; the crystalline substance we may suppose, is in the form of dust, granules or threads, not an impalpable something, but a material which may be seen by the naked eye and handled by the fingers. Under the microscope it may be seen to form from an aggregation and concretion of the cells. From it buds sprouting emit what may be compared to the contents of an egg—a protoplasm—an apparently homogeneous aqueous fluid in which presently begin to appear dim outlines of cells that gradually grow in size and increase indefinitely, not from cell division, but from the development of a cell from every atom of the protoplasm. The power of this fluid is only exhausted when its ultimate atom has become a cell. The characters of the protoplasm prior to the development of cells would probably elude all efforts at recognition so that fluids and tissues of a body containing it might be examined with the highest powers of the microscope without the detection of any organic particles.

All parts of the cholera fungus then are portable, all are tangible, visible entities, except the infinitely minute atoms of cells in the protoplasm.

The entrance of this fluid into the economy impregnates the system with the ultimate germ of the cells which under favoring circumstances develops at the expense of the blood, and produces the symptoms known as cholera.

The seeds of the disease are brought in the course of travel to a locality as crystalline substance—cholera dust—or as protoplasm diffused in the moisture of the air or water, or in the fluids of the human body, in the form of cells. Under favoring conditions these elements proceed to perform each its part in nature, so that sooner or later, after finding a resting-place in a community, they develop protoplasmic fluid which, disseminated by the law of diffusion of fluids in the air and water, or resting as the dew upon articles of food, finds its way into the body. The atoms of this poison, infinite in number and pervading large areas of space, are received into the system of all as is the pernicious miasm of the marshes. The blood, acting as other fluids have been observed to conduct when impregnated with fungi, resists the changes which it is the destiny of the foreign agents to effect until the number of the invaders, or some changes in the vitality or chemistry of the impregnated fluid makes longer resistance impossible, and an explosion of the disease like a paroxysm of pernicious fever results. The ejecta from the first cases, filled as they are with cholera cells, find their way generally to a favoring soil, and develop within a few hours succeeding phases of the fungus. Thus crop after crop of cholera atoms are begotten in a prodigiously increasing progression to extend the area of infection and increase the malignancy of the disease. It may happen that the germs of cholera introduced in a locality find circumstances unfavorable for their development at the time; and although the seeds of the disease may be pretty generally sown, they lie dormant for a season.

There are certain known facts regarding the cholera which at least lend plausibility to the theory that the germ may be implanted in a district long in advance of the actual appearance of the disease. Such, certainly, is the case when the cholera "winters over," as it is said, lies inactive, it may be, through the fall, winter and spring to arise into activity the following summer.

It has long been noticed that an epidemic of cholera is often preceded for weeks by the influenza, and a marked and general tendency to diarrhœa. The reasonable assumption that both the fore-running ailments and the succeeding disease were the effects of a common cause would imply the presence of the germ of cholera in a locality long before the actual outbreak of the epidemic.

The march of the pestilence, though generally in the track of travel, is sometimes singularly abnormal as to this law. The cholera sometimes springs up in places far out of the line of apparent exposure. These variations and exceptions to the general law of portability of the disease suggest a possibility of the truth of the theory that it may be primarily sown as a temporarily inactive dust, as well as implanted as a speedily developing protoplasm. It may be, that in attempting to trace the origin of the disease by noting in any locality the first case, we err in this, that we compare the course of the epidemic with the line of travel in the presence of the attack, when possibly

it is the course of the traveler from the infected district of last year to which attention should be given. The irregularity as to the time and place of appearance may be further referred to the varying soil and temperature of the respective localities considered as developing agents of the deposited germ.

It will be noted that there have been here set forth two theories as to the mode of advance of cholera. The one, that it advances in successive crops from a first or isolated case; the other, that the seeds are sown broadcast over the countries elected for visitation, and that these are developed when and as favorable conditions arise. The number of cycles which the cholera germ may undergo in a season may vary with the locality, temperature, etc., conditions which determine the severity of the epidemic and the length of its stay in a place. Thus, at St. Louis the number of its cycles might be three-fold greater than at Bangor. And a variation in the time of the cycle, also, might influence the rate of advance of the disease.

Changes in the blood effected by the protoplasmic atoms in their act of development into cells alone produce the cholera; the presence of cells which have already completed their growth, or the material formed from them, cholera dust, does not directly induce disease. Thus, rice-water discharges abounding with comma bacillus may be drunk without injury. The subsequent deposit of these cells in the ejecta of the experimenter may, however, lead to an outbreak of the disease, of which he may prove the first victim.

One of the most singular laws of the cholera is this, that with rare exceptions it marches *onward*. It remains active in a place a number of weeks and subsides, and the places next attacked are *beyond*, relatively to the starting point, the district last devastated. In reference to the army worm this also is a fact; and in regard to the march of the insect we can plainly discern the laws, and that, whether it be held that the eggs have been all deposited by the same army of moths, or by successive broods of them. In the one case we may suppose the millers, finding the fields of favorable deposit preëmpted, pass onward to unoccupied territory. In the other, because of the devastation made by the preceding generation, the millers of the present must instinctively move onward in search of proper resting places for their eggs.

Now, as the army worm moves onward by instinctive selection, may it be possible that the cholera fungus advances by a *vis a fronte*—a species of chemico-vital affinity—a diffusion in the direction of affinities not yet exhausted. Just as the small-pox virus dwells in a community till its affinities for all are expended, and then moves onward—in the direction of the unprotected.

To the student of cholera, the parallel furnished by the army worm as to the convection of its elements, and the possibilities and proper times and methods of quarantining against them are suggestive.

Means by which man might stamp out, or keep out the myriads of army worms which sometimes in a few hours filled to the brim the cordon of ditches plowed about the grain fields, and changed in an equally short time flourishing acres of wheat into a "marble ground," can hardly be devised. Plans by which he might unearth and devitalize chrysalides planted under every sod from Georgia to Maine are difficult to imagine. Methods by which he might successfully contend against the innumerable moths filling the air, might discover and destroy the numberless eggs deposited in every meadow on the continent are inconceivable.

How infinitely more difficult to avoid or to antagonize are the minute cells, the every way and everywhere portable dust, and the invisible, intangible, miasmatic atoms of the cholera.

And yet the farmers actually did antagonize their protean plague in all of its phases, and with a fair measure of success. They quarantined against the ever coming and ever increasing countless millions of worms. They energetically and persistently worked to keep off from the yet uninvaded fields by means of a cordon, mechanical and chemical, all possible insects—they plowed under, and deeply buried, in order to destroy, the chrysalides known to have formed; they attempted to entrap and destroy the millers by cordons of lights, and they burned the grass where the eggs were deposited.

The principles of quarantine against the cholera suggested by the theory of the disease here presented may be summed up in the following propositions:

Elements of the disease known to exist may be isolated or destroyed.

Places suitable for the development of the elements may be rendered unsuitable.

Ingesta possibly contaminated by the cholera poison may be avoided.

Badly infected districts may be evacuated.

According to this theory, during an epidemic the poison lurks in every individual. In the blood of an exposed person are two contending forces; the one the resistance of the vital fluids to the changes attempted to be made by the invading atoms; the other, the efforts of the latter to appropriate from the blood materials for their own growth.

One of the first evidences of the yielding of the forces contending for integrity of the blood is loss of the serum. The one important event in the chemical change in the blood necessary to give the victory to the ferment (invading atoms) is loss of its serum. Speaking figuratively, serum is the essential ally of the blood in its resistance to the invaders. Ejection of ever so little of this, tends to render the ejection of other portions easier, and to give the final victory to the poison.

Now, while no prophylactic measures are known, it is most fortunate for mankind that remedies are at hand which, if applied in season, may, unless the assault of the ferment be overwhelming, arrest the flow of serum and reinforce the blood in its resistance to the infection.

Even when the cholera has held full sway, when it has run its course without interference, it is not necessarily fatal. Either because the dose of the poison has been insufficient to destroy, or because in some life may continue after the virus has done its worst.

The secondary, reactionary conditions, following the collapse known as the typhoid state, are compli-

cated phenomena. They are expressions of the efforts of the system in its struggles with the resultants of the cholera paroxysm rather than a proper stage of the disease. They bear a relation to cholera which may be compared to that which surgical fever bears to injuries which caused it.

This theory of the presence of the germ of disease in the system of all involves the recognition of the principal of acclimatization in this disorder. One may become by gradual inurement habituated to the presence of the virus, and, perhaps, the majority so inured are able completely to resist it. As in the yellow fever, however, the acclimation may be speedily lost. Persons whose systems have not thus become acclimated to the poison may be, upon sudden exposure, stricken down with violence.

FOREIGN CORRESPONDENCE.

BELFAST, IRELAND, Aug. 5, 1884.

MR. EDITOR:

The fifty-second meeting of the British Medical Association was held in Belfast, Tuesday, July 29, to Friday August 1. Will you grant a little space to a delegate from the American Medical Association, that he may give an account of the proceedings to the members who did not have the privilege of attending? The meeting was largely attended, not a little attraction being added by the fact that only two of the previous meetings had been held in Ireland. Of the members sixteen were present as delegates from the American Medical Association.

Everything was done to make the meeting a success from every standpoint, and it will go on record as one of the most successful and most interesting meetings of the Society. The meeting was held in the buildings of the Queen's College, than which there could have been no more desirable place, the accommodations being ample, sufficient, and compact. The general meetings were held in the spacious halls of the library, and the sectional meetings in the various lecture-rooms—the fact that all were near and convenient being a great advantage.

Each day there were one or more general meetings at which the business of the Society was transacted.

There were besides, eight Sections, viz.: a. Medicine, b. Surgery, c. Obstetric Medicine, d. Public Medicine, e. Ophthalmic Medicine, f. Physiology and Pathology, g. Pharmacology and Therapeutics, h. Psychology. Each of which held three meetings, in which valuable and interesting papers were read and discussed.

Most admirable addresses were given by the President of the Society, James Cuming, M.D., F.K.Q.C.P., Professor of Medicine in Queen's College, and Physician to the Royal Hospital, Belfast; and in Surgery by Sir William McCormac, F.R.C.S., London; in Medicine by William M. Ord, M.D., Physician and Lecturer on Medicine to St. Thomas Hospital, London; in Physiology by Peter Redfern, M.D., Professor of Anatomy and Physiology, Queen's College, Belfast; and in Obstetric Medicine by George H. Kidd, M.D., Consulting Obstetric Surgeon, Richmond and Hardwick Hospitals, Dublin. These were all admirably written and showed exhaustive research, all with the exception of Dr. Kidd, who wrote on puerperal fever, being of a general nature, and as they will appear at length in the *British Medical Journal*, I will not take up your space with an abstract. Each and all received the most cordial attention and the best thanks of the Society were given to the writers.

In addition to the business proper of the meeting, everything was done to make the visit of the members one long to be remembered, and for this many thanks are due to Dr. Robert Esler, of Belfast, who not only was Chairman of the Excursion Committee which arranged and conducted some excursion for each day, but he wrote a special guide to the city of Belfast and the North of Ireland of 123 pages, which he presented handsomely printed and bound to each member.

The annual dinner was a very pleasant occasion.

The ladies being invited to the conversazione given by the President and Executive Committee, and to the reception given by the Mayor of Belfast, helped to make these very brilliant affairs. On Saturday, Aug. 2, the business of the meeting having been concluded, four general excursions were arranged. Each by a different route, comprised a day's trip in the North of Ireland. Of these the one to the Giant's Causeway was the favorite, about 300 members taking advantage of the occasion to visit this wonderful formation.

There were in addition, several garden parties and dinners to limited numbers, and each one who attended the meeting will long remember the hospitality extended to them.

Will also try to send you some information about the meeting of the International Medical Congress at Copenhagen. N.

DOMESTIC CORRESPONDENCE.

TREATMENT OF CHOLERA.

EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:—

It has seemed proper to me to call the attention of the profession to the valuable article on the treatment of Asiatic cholera, by Dr. S. S. Todd, in the JOURNAL for Aug. 9, not only because the subject is peculiarly opportune at the present time and the method proposed seems exceedingly rational, but for the reason that, some time ago, a similar proposition was made by a German writer, and the statement that the plan has hitherto been untried needs modification.

Prof. Samuel, of Königsberg, in 1883, published a brochure on Subcutaneous Infusion as a Method of Treatment of Cholera, in which he proposed at some length a plan similar to that recommended by Dr. Todd; the same writer has recently reiterated his views,[1] a synopsis of which I believe will be of interest and value.

[1] Die subcutane Infusion als Behandlungsmethode der Cholera, von Prof. Dr. S. Samuel, in *Berliner Klinische Wochenschrift*, 1884, No. 28.

In his opinion the essential pathology of cholera consists of a process of transudation into the intestinal canal—the original cause being the presence of certain bacilli—that, by continually robbing the blood of its watery constituents, causes it to thicken, stagnate and finally stop circulating. If the disease passes beyond the stage of premonitory diarrhœa, and the patient is already in a collapsed state it is useless to attempt any direct treatment of the transudation, as all medicaments introduced by mouth or rectum are immediately carried off, either through vomiting or diarrhœa. Even if the intestinal muscles are incapable of any exertion, as in so-called cholera sicca, the situation is not much better, for here absorption fails, a fact proved by recorded experiences.

Experience has also demonstrated that, in a majority of cases, this great loss of serum is the cause of death.

The duty of the medical attendant is therefore, in some way, to make up for this loss; and in the performance of this duty he derives some comfort, though it be scanty, from the fact that the stage of collapse is always short, lasting in survivors but from 24 to 36 hours; to whatever fact the improvement may be due, it is certain that after the expiration of that time absorption begins again and the circulation improves.

From the above reason the chief end of treatment should be the maintenance of the fluidity of the blood during this critical period. To accomplish this aim the infusion of water directly into the blood has been employed, as offering the great advantages of a direct supply, and doing away with the question of absorption. It is fair to add that all who have attempted this operation once or twice have been strongly impressed with its favorable influence. But as not one nor several injections, but an almost continuous stream is needed, we are at once confronted by the difficulty of carrying out so delicate a surgical procedure on a restless patient and the great risk of diffuse phlebitis.

The method of subcutaneous infusion is, *per se*, an innocent one, the only question that arises being whether so large amounts of water as are needed can be absorbed by the surrounding tissues, a question that experience alone can fully answer.

It is a fact that all free œdema in cholera patients quickly disappears. Beigel (*Lancet* ii, No. 13, p. 352), has already in a case that was completely collapsed made hypodermic injections of warm water in the calves, thighs, and arms, so that at first he injected in all seven ounces. Since improvement followed this measure he made two further attempts, but the patient finally succumbed.

During the epidemic of 1866, Dr. Samuel repeatedly injected substances into the calves and epigastrium. Absorption, though often slow, invariably followed.

It is probable that absorption in the subcutaneous tissue is slowest when the circulation is reduced to a minimum. But even up to the last inspiration it would take place at the spot where the circulation is longest maintained, that is, in the neck. Therefore in bad cases the nearer to the neck the injections are made the better, and Dr. Samuel recommends that they be made in the upper part of the chest on both sides directly under the axillæ, and that they be thrown in at many different points in this region and that their absorption be aided by massage.

It is to be remembered that the lower half of the body does not absorb nearly as well as the upper half.

Trocars that are bound to irrigators and can be left *in situ* are to be preferred to needle apparatuses, in that the latter may pierce important vessels and nerves.

For injections salt solutions consisting of six grams table salt, and one gram carbonate of soda in one thousand parts distilled water heated to a blood heat are suitable.

It must always be borne in mind that in the nature of the case success can only be expected if the subcutaneous injections are followed up continuously to the termination of the stage of collapse.

The above has been written in no spirit of captious criticism, but with a full appreciation of the extreme difficulty that the busy practitioner labors under in the effort to keep *au courant* with the current literature, and is communicated with the belief that any contribution to the study of Asiatic cholera, in view of its expected visitation to our country, should be given all possible publicity.

Geo. A. Staples, M.D.
Dubuque, Iowa, Aug. 20, 1884.

NECROLOGY.

Woodward, Joseph Janvier, M.D., Surgeon U. S. A., was born in Philadelphia in 1833; died of disease of the brain, near Philadelphia, 17th of August, 1884. He received his academical education at the Philadelphia Central High School, from which he received the degree of A.B. in 1850 and his A.M. in 1855, and was honored on the occasion with the position of valedictorian. After receiving his first academic degree he began the study of medicine in the office of Prof. George B. Wood, and attended lectures at the same time in the University of Pennsylvania, from which he received the degree of M.D. in 1853. His graduating thesis was on the antiseptic properties of chloride of zinc. He at once began the practice of his profession in his native city. Dr. Woodward formed a class for instruction in the use of the microscope and the study of pathological anatomy, and the examination of students preparatory to their final examination by the Faculty for their medical degree. His practice was growing, and he was becoming favorably known as a teacher and practitioner, when the war between the States broke out. He at once tendered his services to the government, and was commissioned Assistant Surgeon 5th August, 1861, and served for a time in the peninsula of Virginia. He was assigned to duty in the Surgeon-General's office 19th May, 1862, and continued in this position until his illness and death. He

was Curator of the Army Medical Museum, which grew up under his immediate supervision.

Dr. Woodward was advanced to the rank of Captain and Assistant Surgeon 28th July, 1866, and promoted to the rank of Major and Surgeon 26th June, 1876. He received commissions of brevet Captain and Lieutenant Colonel for "faithful and meritorious services during the war." To Dr. J. J. Woodward and the late Dr. Geo. A. Otis, U. S. A., was entrusted the editing of the Medical and Surgical History of the Rebellion. The medical profession of the country know and appreciate how ably this work was accomplished. His classification, naming and describing the many pathological specimens in the Army Medical Museum, was of itself a vast work, and one which will be an enduring monument to his genius, industry and accurate knowledge of the subject. It is true that in the surgical part of this he was ably seconded by his accomplished associate, Dr. Otis.

Dr. Woodward was a voluminous writer in various departments of medicine, and of the collateral sciences. A simple enumeration by title of his papers would fill several columns of this journal. His contributions were welcomed by every medical and scientific periodical, and they adorn the pages of many of them. His work was always well and conscientiously done. He had a true love for scientific investigation. His mind was analytical, and demanded evidence, which he weighed in a most searching and logical manner. He had great power of work, which he taxed severely, and to which may be ascribed as clearly as in any case I ever knew his failure of health and premature death. In 1875 his health underwent something of a strain, and for some six or eight months he suffered from a series of painful phlegmonous boils, but a little rest restored him to his usual good health.

In 1879 the doctor from overwork impaired his digestion, and for a time he suffered extremely from insomnia, but a trip to the mountains of Switzerland and rest for some six or eight months apparently restored him again to full health. The completion and character of the work done on his last volume shows no perceptible impairment of his vigor or powers. In the winter of 1880 his horse fell with him in Pennsylvania avenue and fractured his leg. This confined him to his room for some time, but he apparently fully recovered from this.

The range of studies in which Dr. Woodward was proficient and master were numerous. With the microscope he was an authority of wide and general recognition by those most competent to judge. His writings and opinions have a high value with the profession. In point of magnitude, the "Medical History of the Rebellion" is, perhaps, the most colossal professional work ever published in the United States. Upon this and his work upon Typho-Malarial Fever, and his photographic, microscopical work will probably rest his fame as a medical man and scientist. His literary work not only called for a familiarity with Latin and Greek, but with the French, German, Spanish and Italian languages, all of which he was able to read and translate with ease. His proficiency in languages he acquired while engaged on his other work, and his last volume of the medical history of the rebellion is particularly rich in classical allusion, comparison of texts, and quotations from original authors. Dr. Woodward early identified himself with medical organizations, and was an earnest supporter of a high standard of medical education, professional worth and medical ethics. He was a member of the Philadelphia County Medical Society, and of the College of Physicians and Surgeons of Philadelphia. He was a member of the Central International Medical Congress, which met in Philadelphia in 1876, and read an able paper opening the discussion in the Section of Practical Medicine on Fever. He became a member of the American Medical Association in 1865, attended its meetings in 1866-'67-'68-'69-'70-'72-'73-'74-'75 (when he was chosen one of the Vice-Presidents) 1876-'77-'78 and '79. In 1881, at the meeting in Richmond, Va., although not present, he was chosen President of the Association. Shortly after this his health broke down and he, with his devoted wife, started on a trip to Europe in hopes of benefiting him. On the 31st of January, just before leaving, Dr. Woodward wrote a touchingly kind letter to the Association informing them of his impaired health and his purpose to travel, and the regret he felt in not being able to be present at the meeting in St. Paul. This letter was read to the meeting, and may be seen in full on the third page of the volume of Transactions for 1882.

His trip abroad, although protracted, did not stay his disease, but, on the contrary, it progressed unfavorably, and he returned home in the spring of 1883 in a worse condition than when he left. After some months' treatment in his own house he was taken to an institution in Philadelphia, which was under the charge of a personal friend and an accomplished physician, where he received every attention which friendship and the best medical skill could command, but without improvement.

Dr. Woodward was elected an honorary member of the Medical Society of the District of Columbia in 1874, and occasionally read papers before it. He was a member of the Philosophical Society of Washington, and its President in 1881. He was one of the original members of the National Academy of Sciences, and an active and valuable worker in its ranks. It was characteristic of the doctor that he always engaged in his scientific studies with zeal and enthusiasm, never saving himself labor or taking facts at second hand which he could verify by experiment or examination. He thus by his temperament and his love of true science kept himself on a strain all the time. He was a fine conversationalist and popular in society, but of late years became so engrossed in his work as to give but little of his time to mere social intercourse. He was also a good debater, possessed a fine flow of language and presented his points in logical sequence and with convincing clearness and force. Although Dr. Woodward is chiefly known outside of his near acquaintances by his writings, still he was a skillful practitioner, and one of the most accurate diagnosticians

to have been met with anywhere. His abilities in this direction alone would have assured him a large and lucrative consulting practice in Washington or any other city. Even with all his engagements and duties, both in army circles and with the city practitioners, he was always ready to advise with medical men who called upon him with a history of an obscure or embarrassing case. Scarce a medical practitioner of any note in Washington but who has repeatedly profited by his suggestions and advice in this way. The writer takes pleasure in acknowledging his many obligations to him.

July 2, 1881, he was selected, or rather detailed by the Surgeon-General, by the request of the Secretary of War as one of the staff surgeons to attend President Garfield. The labors and anxiety incident to that long and confining duty seriously impaired his health, and from which he never recovered.

It was understood that he had kept accurate notes of this case with a view to publication, but never, we believe, took it up for study or arrangement. Dr. Woodward was frequently solicited by different medical colleges to accept chairs and devote himself to teaching, but he felt as though his life-work was to complete the medical history of the war. So he worked on, and we know the result. Dr. Woodward was twice married; by his first wife he had two children, a daughter and a son. His son, Janvier Woodward, graduated with high honors at Annapolis, and is now an officer in U. S. navy. His second wife was Blanch, daughter of the late Cornelius Wendell, of this city, by whom he had three children, two sons and a daughter. The doctor's death, although expected, was sudden. His remains were brought to his late residence, 620 F street, Washington, where funeral services were held by the Rev. Alexander Kent. His body was laid to rest on the evening of the 20th, in the peaceful shades of Glenwood cemetery, in the presence of many friends.

J. M. T.

Lomax, Constantine, M.D. Dr. Constantine Lomax was born in Guilford county, North Carolina, on the 31st day of December, 1814. On the side of his father he was of English-Irish, and of his mother, of English-Welsh descent. In both lines his ancestors were among the early colonists of this country, and both of his grandfathers were soldiers in the Revolutionary war. When about two years old, his father, Abel Lomax, and his mother, Elizabeth Lomax, with their family, emigrated to Indiana, and located in Wayne county. The state having just emerged from its territorial condition into the Union, afforded very poor facilities for education. Four short terms in a common country school were all he ever had the privilege of attending. In 1837, his father and family removed to La-Porte county, on the northern boundary of the state, and Constantine accompanied them, and continued to work upon the farm with his father until 1843, when he married Miss Rachel Van-De-Vanter, of Lagrange county. After this, he devoted himself to farming for some two or three years, when, by the influence of his brother, Dr. Wm. Lomax, he abandoned the farm and entered the office of Dr. Daniel Meeker, of La Porte, as a student of medicine. He attended three full courses of lectures in the Indiana Medical College, and graduated on the 17th day of February, 1848. Immediately after this he located in Marion and entered upon the active duties of his chosen profession, in partnership with his brother William. In this year, with the other physicians of the county, six in all, he associated in the organization of a county medical society, of which he continued an active working member until his death. In 1850 and '51, he attended a course of lectures in the Ohio Medical College in Cincinnati, and received a diploma from this school on the 4th of March, 1851.

In 1863, Dr. Lomax was appointed by President Lincoln, Surgeon of the board of enrollment for the eleventh Congressional District of the State, a position he held until the close of the war. The partnership existing between him and his brother in the practice of medicine was, by mutual consent, dissolved in 1876. Dr. Lomax, at various times, filled all of the offices of his county society, was a member of the District and State Medical Societies, and had been a member of the American Medical Association. He was a man of marked acuteness of discernment and accuracy of opinion. While he was unassuming and diffident in discussions at the society meetings, his opinions commanded the highest respect of his fellow-members. When differing from others, which he often did, he would state the grounds of difference in such clear and accurate terms as rarely failed to convince the other members of the correctness of his views. If uncertain of diagnosis or other matters of consideration, it was his custom to so express himself without argument or other waste of words. His knowledge of anatomy was unusually thorough for a country practitioner. In canvassing the pathology of diseases brought before the society, he was noted for his aptitude for anatomical and physiological explanation of symptoms presenting themselves in the case, so that while he was the most unobtrusive of all the members of the society, there was no one whose opinions were more influential in the decisions of the meetings than his.

Dr. Lomax was naturally of a cheerful, urbane disposition. Kindness of heart, a scrupulous regard for the feelings of others, and the claims of all to respectful recognition, made him a very agreeable companion. Having an exquisite sense of professional honor, and an unmitigated contempt for the groveling charlatan, he would prefer to abandon entirely a case, rather than indulge a contest where the petty devices of a trained medical knave were to be met before the tribunal of popular ignorance and gullibility. On one occasion, he was called on to consult in the case of a lady near a neighboring country town. When he arrived, he found an Eclectic in charge of the case. He examined the lady, and was satisfied she might be benefited by a proper treatment. After going out with the Eclectic, Dr. Lomax informed him that he regarded a consultation between two antagonizing professions as being eminently improper, and very wisely forbidden by the Ethics which he was under plighted obligations to observe

and carry out, and that he could not consult with him.

They called the husband out and informed him of the fact. The husband requested the doctors to remain while he could go in and see the patient and learn her wishes in the matter. In a short time he returned and said his wife wished them both to come into the sick-room, which they did. She expressed great astonishment at learning of the prohibition of the consultation, which she could not understand, but said since it was the case, she wished both doctors to stand up before her so she could see them both at once. The doctors felt a little embarrassed and amused at the undignified requirement, but yielding to the whims of the sick woman, stood side by side before her. After a brief review, she inquired of Lomax if he understood her condition? He replied he thought he did. Then could he cure her? He thought she might be benefited by treatment. Would he give her the treatment needed should she prefer him? He said he would do the best he could. Turning to the Eclectic, she told him she felt thankful to him for his faithful attentions and efforts to relieve her, but he knew she had suffered long and was not relieved, but was steadily losing strength; that now, without any disrespect to him, she would be glad to have Dr. Lomax give her treatment. The Eclectic assured her it would be perfectly satisfactory to him. Thus, without any bad blood, the matter was amicably adjusted.

Dr. Lomax was a conscientious stickler to the Ethics, and rarely or never had any difficulty in observing them literally in the exercise of professional avocations. He was liberal and earnest in promoting all measures tending to advance the interests, honor and usefulness of the profession. In 1876, he was appointed examiner for pension applicants, and when a board was organized for the purpose, he was chosen to preside in its deliberations, a position he held until his death.

In politics, Dr. Lomax was a Republican. Some thirty years ago he united with the M. E. Church, since which he lived the life of a faithful and consistent member. His last illness was painful in the extreme. He was literally tortured to death by an incorrigible neuralgia. He died on the 6th of March, 1884, in full confidence of a blissful future.

His death made a sad and irreparable breach in a family circle of nine living children, the youngest member of which was fifty-five years of age lacking three months. L.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership. RICHARD J. DUNGLISON, M.D.,

Treasurer.

Lock Box 1274, Philadelphia, Pa.

THE WIDOW OF CLAUDE BERNARD, it would seem from an article in *Le Progrés Médical*, has come under the ban of the law through the complaints of her neighbors that she kept an infirmary for dogs and cats. The lawyer for the defense says of her that "Mme. Claude Bernard is the widow of the illustrious savant of that name, and I have heard it said that she did not make him very happy. An unique cause of dissension existed between them. Here example was not contagious. M. Claude Bernard was, as is known, the initiator, the apostle of vivisection. My client was an ardent member of the opposite party. She is persuaded—and it is she who has told me—she is persuaded that when she has saved as many dogs and as many cats as her husband has immolated, their souls will be joined in Paradise."

The establishment contained forty dogs and as many cats, it was managed by women, and extremely dirty and offensive, for which she was fined and ordered to close her infirmary.

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING AUGUST 23, 1884.

P. A. Surgeon P. M. Rixey, orders to U. S. S. "Lancaster" revoked, to continue on special duty.

Medical Director C. Martin, to be retired Aug. 21, 1884

Surgeon T. C. Heyl, detached from U. S S. "Independence," ordered to U. S. S. "Adams."

Surgeon J. G. Ayers, detached from U S S. "Adams," placed on waiting orders

Assistant Surgeon L. W. Curtis, detached from U. S. S. "Adams," placed on waiting orders.

P. A Surgeon F. B. Stephenson. detached from Navy Yard, ordered to C. S. S. "Bache."

P. A. Surgeon E Z. Derr, detached from C. S. S. "Bache," placed on waiting orders.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUG. 16, 1884, TO AUG. 22, 1884.

Woodward, J. J., Major and Surgeon, died August 17, 1884.

Birmingham, H. P, First Lieutenant and Assistant Surgeon, granted one month's leave of absence. S. O. 162, Dept. of the Missouri, Aug. 12, 1884.

Wilson, Geo. F., First Lieutenant and Assistant Surgeon, relieved from duty at Fort Walla Walla, W. T., and to take station at Vancouver B'ks, W. T. S. O. 120, Dept. of the Columbia, Aug. 13, 1884.

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ORIGINAL ARTICLES.

OCCULT CAUSES OF DISEASE.

BY W. L. SCHENCK, M.D., OSAGE CITY, KANSAS.

[Read in the Section of Practice of Medicine and Materia Medica of the American Medical Association, May, 1884.]

The world moves in cycles—the earth on her own axis, around the sun, her path about the sun recording the mighty cycles of the glacial eras. Periodicity marks all nature. Theories and fashions in art and science come and go, to go and come again. "The thing that hath been it is that which shall be." To this rule medicine forms no exception. Its theories come and go with such regularity, they are hardly worth combating. The next cycle will set them aside, but again and again they will return until we build upon absolute truth. It is useless to disturb them, except as they stand in the way of enduring progress.

The causes of disease are oft-times hidden, and we may fail to discern them, but we should avoid building upon the sand. A cause in any science is that which excites or impels—that which produces a result without which it would not obtain, and which, existing, must tend to the result. To cause is to put in operation forces capable of producing given results, and the results of a cause, except in exceptional cases, must be uniform and definite.

Let us apply this test to the causes of disease, and especially to microscopic germs as their cause. The germ theory of disease is not new. The present is only one of its many cycles. Upon my introduction to the medical world more than a quarter of a century ago, some of our professors were wont to account for the erratic movements of Asiatic cholera upon the germ theory of causation, and to-day Cohn and Pasteur are vying with each other in their efforts to demonstrate microscopic germs as the cause of cholera in Egypt, and the theory is supported by many of the most distinguished names in medicine. Bassis discovered the presence of *bottitis bassiana* in the silk-worm disease. Pasteur and Cohn measurably demonstrated the relation of microscopic fungi to fermentation, and the conclusion was quickly and generally inferred that disease was fermentation, and microscopic germs its cause, and the term septic, from *sepein*, to rot, was applied to a most formidable class of diseases. All the world became microscopists. Polander and Davainè and Koch demonstrated the *bacillus anthracis*, Obermeyer discovered the presence of *spirillum Obermeyeri* in relapsing fever, Eberth and Freidlander the bacilli of typhoid fever, and Klebs of goitre, and Neisser of leprosy and gonorrhœa, and the search has been continued until specific micrococci have been found in septicæmia and pyæmia, in variola, vaccinia, rubeola, scarlatina, diphtheria, erysipelas, metritis, etc., etc. And why not? If specific bacilli are present in any large number of diseases, why not in all?

But when their presence has been proven and when it has been demonstrated that they are the cause of septic fermentation, of decomposition, have we proved them the cause of disease? When we consider the numbers and learning of those who affirm, it may be deemed presumption to question. But names and numbers count nothing in science. Every searcher after truth should give it as he perceives it. Only thus can truth advance.

It has been proved by all observers that the microscopic germs that are supposed to be the cause of various specific diseases, are not only present during the existence of those diseases, but are ever present in and about us. If they are the efficient cause of all or nearly all diseases, then a cycle may be made in spiritual medicine, and doctors and divines may go back to the days when all disease was attributed to the wrath of God. Brahma, the creator, is transformed into Siva, the destroyer, if he has created us and then filled earth and air with innumerable unseen foes whose function is to miserably destroy by pestilence and plague. The crowning act of creation—made a little lower than the angels, and made to be destroyed by the lowest types of animal and vegetable life! The highest creative art of Omniscience destroyed by the mad hand of Omnipotence by the meanest, lowest things that live! Of such a creation the record would hardly read "and God saw everything he had made; and behold it was very good." We believe science will confirm the record, and truth prove a unit.

As the astronomer was struck with awe and admiration when a more powerful telescope revealed to his astonished vision other and grander universes than his own, marking incalculable years as they moved by immeasurable paths through illimitable space about some centre of incomprehensible magnitude, so the microscopist, as his instrument revealed the multitudinous creations within and around him, mak-

ing each drop of water, each breath of air, and each corpuscle of blood teem with life, confused by these innumerable and never-ending creations, wrongly inferred that the earth no longer yielded her richness to the grasses and grains, these to be consumed in animal growth and the less highly organized animal in the development of a higher type, and man himself sacrificing his life for the growth of clan and country, and the spiritual elevation of his race, but taught that omnipresent microzones, in numbers numberless, lived and moved and had their being through the destruction of the highest type of creation. They have not only been proved ever present, but capable of a most wonderful reproductive power. Cohn estimates that a single microzone can produce one hundred and fifty billions of microzones in a day, reproducing by subdivision, breaking its endoplasm into spores with inconceivable rapidity. As far as known they are the lowest, simplest forms of cells. Below them life does not exist, and everywhere they are more numerously present than all other forms of life combined. We believe it will be found their omnipresence and wonderful power of reproduction is for beneficent and not malign purposes.

It is an undoubted fact that they cause putrefactive changes in organic products, and reduce them to their elemental state, but before they can do this there must be a condition present in organic structures rendering such change possible. They are within and about us in health, and harmlessly so. They cannot produce this change in healthy living tissues, vegetable or animal. In disease they reduce to elemental conditions the products of disease, and instead of being the avenging messengers of God are his good angels, "entertained unawares." They destroy dead matter without the body and with it may enter the living tissues, not to destroy them, but to resolve into their ultimate elements the death it causes. They are the ferment that prevents the living body from becoming encumbered with dead matter, the result not only of diseased but of healthy action. Destructive metamorphosis is one of the great life principles, and every thought, every movement, voluntary or involuntary, involves tissue death.

Death is as little understood as life, but is a fixed condition, as is shown by dead tissues preserved through the action of antiseptics. Could those who believe microscopic germs the cause of disease and its destructive agency apply their germicides in sufficient strength to destroy these micro-organisms, they would turn the Creator's good into evil. Arrest the disease which causes death, but save the organic ferment that transforms the dead tissue into innocent, elemental conditions, conditions that make it serviceable in the renewal of life, that make the continuance of life possible.

If there was no other reason, the proved universality of micro-organisms forbids the belief that they are the contagia of disease. If the cause, their universal presence would involve the universal presence of disease. If, for example, micrococci variola or micrococci rubeola are universally present and the efficient cause of disease, then small-pox and measles should arise *de novo* anywhere and everywhere where unprotected persons are found.

Dr. Firera, of Brazil, reports that he found the graveyards where yellow fever patients had been buried the year before teeming with the characteristic cryptococci of the fever, and that having confined a guinea-pig in a chamber with earth taken from a grave, after five days its blood was crammed with the characteristic germ in various states of development. He considers graveyards as a perennial cause of yellow fever. Why not have the yellow fever perennially? If such observations prove anything they prove too much for the germ theory. If the causes of disease are ever present the sequents should be ever present. If the graveyard continually teems with the cause of yellow fever it should "show forth works meet for repentance." There must be some mistake about causation.

The fermentative action induced by micro-organisms is a destructive action. The putrefactive process is a process of reduction, of dissolution. The process of disease is a developmental process, a process of organization. "Every pathological product must have a physiological prototype (Virchow). Every normal cell has an inherent power of reproduction, and every physiological process is a process of normal cell production, hence every morbid cell has an inherent reproductive power and every pathological process is a process of morbid cell production. Beale says of diseased bioplasm "its particles are estimated to weigh many hundreds of times less than starch corpuscles or the scales of an insect's wing, and are capable of floating in the slightest currents of air. These diseased particles, floating readily through the air are inhaled by the lungs, taken into the stomach, absorbed by the skin, or coming into direct contact with the tissues through abraded surfaces, have, until destroyed by the fermentative action of microscopic germs, the inherent reproductive developmental power of establishing pathological processes like those which gave them birth. The cadaver, or any dead tissue, before it swarms with micrococci septicæmia, and by their agency, has undergone fermentative decomposition, is capable of producing in living tissue a typical septicæmia. After putrescence, however numerous its vibriones, it is innocent of harm. Inoculation with it will not cause septic disease.

If then the so-called disease germs are ever present, and disease does not follow their presence as sequents follow causes, and if when present in the greatest numbers they are incapable of producing disease, is it not evident there must be some devitalizing influence, some efficient cause, precedent to germ accumulation and zymosis.

In addition to the presence of microscopic organisms during disease, the germ theory is based on the fact that germicides prevent its development and arrest its progress. Many distinguished investigators have by careful experimentation demonstrated the exact strength of various agents required to destroy germ life and have found though infinitesimal themselves, their vitality is unaffected by infinitesimal dynamizations. We will only refer to the carefully

conducted experiments of Dr. Geo. M. Sternberg, U. S. A., published in the *American Journal of Medical Sciences*, April, 1883. He placed at the head of the list of germicides *mercuric bichloride*, and found the proportion in which it prevents the development of septic micrococci is one part in 40,000, and that the strength required for their destruction is one part in 20,000. He found "*carbolic acid* failed to destroy the micrococcus from pus in the proportion of 0.5 per cent.; but this amount was fatal to the septic micrococcus," when immersed in it for two hours. The average man weighs 160 pounds, and his blood 20 pounds. The dose of bi-chloride of mercury required to saturate his blood to the point of preventing the development of septic micrococci in it would be three and one-half grains, and a dose of seven grains would be required for their destruction, and the necessary dose to saturate the whole body sufficiently to prevent their development in it would be a little over 23 grains, while the dose of carbolic acid required to saturate the blood sufficiently to destroy septic micrococci would be one pound.

However true the theory that septic organisms cause and continue disease, all experiments prove that germicides, in medicinal doses, are wholly inadequate to their destruction or prevention, and hence whatever support the germ theory may have received from the action of the so-called germicides in the treatment of disease is without support, and the success arising from their use must be attributed to some other action. The amount of germicides, as well as the degree of heat and cold necessary to destroy micro-organisms will destroy the life of the patient.

A distinguished physician in an article published in the JOURNAL AM. MED. ASSO., Nov. 3, 1883, says "Water containing albumenoids in solution, if allowed to become standing, is sure to undergo deleterious changes from its infection from the *ever present* atmospheric germs which utilize these products as food and reproduce in numbers utterly beyond conception. * * * The spores of certain forms of these lower orders of vegetation have a remarkable vitality, and have resisted a dry heat quite above boiling water." In a paper read before the last meeting of the American Medical Association the same gentleman places "bi-chloride of mercury preëminently at the head of the list of germicides," recommends a solution of 1 part in 2000 as the proper strength to destroy bacteric life, and says "under the light of new values preparations of mercury are likely to be restored to their old time professional confidences." In his enthusiastic advocacy of the germ theory of disease, he says, "In a purely conservative sense it is not too much to claim that it may be shown that each of these affections" (of the entire zymotic group) "has its origin from, and owes its dissemination to a *contagium vivum* of a definite particular character." * * * "In the light of recent astonishing discoveries no wise man would prognosticate a limit to our future knowledge in this direction. It is not too much to predicate as possible or even probable that the medical art in the near future will hold control over the entire class of zymotic diseases as effectually as vaccina has controlled and relegated to an almost hypothetical danger the terrible scourge of small-pox which ravaged humanity during many centuries of the historic ages. * * The so-called germ theory has passed into the realm of demonstrated fact. The patient labors of scores of very careful investigators during the last generation have slowly elaborated the fact that fermentation is dependent upon a particular something *omnipresent in ordinary surroundings*, and clearly shown that this something belongs to one or another of the varieties of exceedingly minute vegetable organisms." "*Ever present atmospheric germs*," "*Omnipresent in ordinary surroundings*," the cause of disease and yet disease occasional, exceptional. Disease arrested through the administration of solutions of bi-chloride of mercury, carbolic acid, etc., of sufficient strength to destroy the "*remarkable vitality*" of these omnipresent germs that "resist heat quite above boiling water," and thus "relegate zymotic diseases to an almost hypothetical danger." All this "passed into the realm of demonstrated fact," and "no wise man will prognosticate a limit to our knowledge in this direction." The writer may not be a "wise man," but he will not only "prognosticate a limit to our knowledge in this direction," but will express the opinion that the general adoption of the germ theory of disease is prejudicial to progress in therapeutics and scientific medicine and is untenable both in theory and practice.

We believe the truth has been elaborated that "fermentation is dependent upon a particular something omnipresent in ordinary surroundings," and that that something "belongs to one or another of the variety of exceedingly minute organisms," but it has not been shown that disease is omnipresent, or that minute organisms are the cause of disease, or that the fermentation they produce is disease, and it has not been shown possible to follow these omnipresent organisms through the circulation, the glands, bones and tissues of the body and destroy them by any known agency without at the same time destroying the vitality of the body.

We further believe the microscopic germ, so far from being a disease germ is a beneficent agent, and the fermentation it produces, a beneficent process, and that as antiseptics cannot be used in or upon the body in sufficient strength to act as germicides without injury to healthy tissue, their benefits accrue from other causes.

If germs are not the cause and sepsis is not disease, we may be asked what is the cause, and what is disease. We may not know, but knowing what is not disease and its cause, we are relegated back to the old base, and ready to commence our search anew.

We do not know what death is, but we do know that inanimate or devitalized matter may remain unchanged or return to its original elements, but that it has no power of growth or reproduction; and whilst we do not know what life is, we know that it exists in the germ cell and in the sperm cell, which though while separated have no power of growth and only a limited lease on life, when united form an embryonic cell, capable of molecular changes, silently

evolving cells of varied structure and function, capable of cell proliferation and differentiation, each differentiated cell proliferating to a definite end. We know that in the insignificant embryonic human cell is hidden the future man. Unfolding, expanding, developing it evolves tissues and organs, through whose instrumentality a spiritual life reaches out and up to the infinite. As unseen and unsuspected beauty and perfume lie latent in the germ that grows into the full blown flower, so all the grand possibilities of life lie in the simple microscopic embryonic cell. But alas! it contains other possibilities; under this same life force morbific cells, tending to disease and death, may be differentiated.

Disease is a pathological process, but a process that has a physiological prototype. Normal cell development in its multiform phases is the physiological prototype. Morbid cell development the pathological process. The physiological process tends to perfection, to life. The pathological to destruction, to death. Each is a cell proliferation, the abnormal at the expense of the normal.

The abnormal is less tenacious of life than the normal, and may be destroyed by agencies that do not affect it. The normal may by its inherent power—the "*vis medicatrix natura*" arrest the abnormal. Strengthening this power, and arresting morbid development is the function of practical medicine, and involves other, and more, than a search after germs and germicides. It embraces the causes, condition and prevention of morbid cell proliferation and leads us to comprehend why the so-called germicides and antiseptics, of insufficient strength to destroy germs and arrest septic changes, may arrest disease and restore health. We can understand how pure air, which has no germicidal power, tends to arrest disease and why "cleanliness is next to godliness," why agents without any germicidal power or in quantities incapable of germicidal action are efficient in many septic diseases. It is true some physicians persist in attributing their action to their germicidal power, but they sin against light and knowledge. Thus Dr. T. in the *Medical News*, Dec. 3, 1883, says: "I prefer borax for routine applications in suppurative otitis media. It is more readily soluble than boracic acid, *and is an energetic fungicide.*" Dr. Bennett reports many successful cases treated by boracic acid, while Dr. Walb says "boracic acid actually encourages the growth of germs," and Dr. Sternberg "boracic acid and sodium bi-borate are equally inefficient as germ destroyers, but both possess considerable antiseptic power." In reference to the experiments of Dr. S. we would suggest to those who adopt the germ theory, if germs are the cause of the septic process, that if they continue unaffected while it, or disease, is arrested, there must be other than germicidal or antiseptic force in the agent.

Tr. ferri chloridi is one of our most highly esteemed agents in erysipelas, typhoid fever and diphtheria, but Sternberg found it an inefficient germicide in the proportion of 4 per cent. It cannot therefore cure these diseases by virtue of its germicidal power. In diphtheria we have had very satisfactory results from a combination of sulph. quinia, sulpho-carbolate of soda, and sulphur in glycerine, but not, we think, because either have any considerable germicidal activity. Diphtheria is a constitutional, as well as a local disease. The tendency of its materies morbi is to lower the vitality, and yet we find mercuric bichloride, an agent of similar tendency, highly commended in its treatment, simply because it is an energetic fungicide, the germicidal power of the agent outweighing every other consideration. If it was given in germicidal doses it would be vastly more destructive than the disease. Since it has been placed at the head of the list of germicides, distinguished gentlemen exult in the thought that mercury is to be "restored to its old-time popularity." Surely the old-time experience with the drug, either by the patient or the physician, was not crowned with laurels.

Quinine is more largely and successfully used in the treatment of septic diseases than any other single agent. Yet Dr. Sternberg found it possessed a very low germicidal power. Lister had great faith in the theory that germs were the cause of disease, and saturated the air of his operating room and the wounds of his patients with carbolic acid, but, in the light of the experiments of Sternberg and others, never to a sufficient extent to destroy the germs, and with no better success than has followed his practice since he has abated his zeal in that direction.

A careful comparison of the results obtained by surgeons and obstetricians who do not use antiseptics with any intent to secure their germicidal action with those who do, goes far towards disproving the theory of germ causation. Mr. Tait and Mr. Keith, once advocates of the germ theory, have surely demonstrated that the greatest success yet attained has been reached by other means than destroying germs, and if the germicidal action of drugs can be ignored in abdominal surgery, may it not be dispensed with elsewhere? Though Volkmann and Billroth have used carbolic acid and corrosive sublimate fully and freely and have attained great success, their results have not equaled those of Tait and Keith, nor can the success they have achieved be in any measure attributed to the germicidal action of the drugs they have used, for they have not used them in sufficient strength to destroy germs.

One more thought. It is claimed specific micrococci are the cause of various diseases, because when isolated and cultivated through several generations, in a non-contagious medium, they will, if introduced into the body, produce their specific diseases. Our only reply is to quote one of the warmest advocates of the germ theory: "They are omnipresent in all ordinary surroundings." Yet without some added factor they do not produce disease.

Mycologists very generally agree that microzones are often present without the disease they are supposed to induce, that the disease is often present without the microzones, that they are frequently negative at the beginning, and most declared after the disease is fully established, when tissue disintegration is at its height, and that the pathological conditions they produce widely differ. If there is any law of causation the cause must precede the disease it pro-

duces, and when present must always tend to the given disease, be its chief factor, and produce it and no other disease. Tried by such simple tests, can bacteria, by any proof yet adduced, be considered even the occult cause of any considerable number of diseases?

A CASE OF RHINOLITHIASIS.

BY JEFFERSON BETTMAN, M.D., CHICAGO.

Read to the Chicago Medical Society.

The comparative rarity of this affection, and the intereresting features connected therewith, induce me to present the following case:

Mr. M., æt. 49, consulted me June last for what he termed "chronic catarrh in the head." The trouble extending over a period of many years, he had at various intervals been under medical treatment, but the benefit he received had always been transitory in effect. Of late the annoying symptoms had become so aggravating, that he had consulted Dr. Ernst Schmidt, of this city, who kindly referred him to me. A nasal discharge, existing for many years, had of late become so copious as to necessitate a daily use of from four to six handkerchiefs. In connection with this, he was subject to periodic attacks of neuralgic headache. According to his description these attacks were hemicranic in nature, extending over the right orbital and temporal regions. As far as he had noticed, there had never been much impediment to free nasal respiration. Later examinations, however, elicited the fact that there was marked obstruction on the right side; a condition which had heretofore escaped the patient's attention.

Status præsens: Mr. M. is a gentleman of goodly dimensions, well-proportioned and to all appearance a picture of florid health. The external nose appeared congested and slightly tumefied, the borders of the nostrils somewhat excoriated. A mere superficial examination, the simple introduction of the nasal speculum occasioned violent attacks of sneezing. During the examination and subsequent operative attempts, I was very much handicapped by this exquisite hyper-sensibility of the nasal mucous membrane. Upon coming in closer proximity to the patient, an unmistakable fetor was noticeable in the expired breath. This fetor, although to a limited extent, was also imparted to the nasal secretion. The latter, viscid and slightly flocculent, filled both nostrils and necessitated a thorough removal ere permitting a survey of the parts. Upon illuminating the nares by means of reflected gas-light, a marked vascularity and thickening of the mucous membrane in general was noticeable. The tissues covering the inf. turbinated bones were so thickened, as to encroach upon and nearly obliterate the fissura respiratoria. The mucous membrane covering the septum was exceedingly congested, sensitive to the slightest touch, and in its tendency to bleed upon the slightest provocation, almost fungoid in nature. Both middle turbinated bones were sufficiently enlarged to press upon the septum. The posterior half of the right nasal fossa, as far as could be judged from a mere visual examination, seemed to be filled with an accumulalation of creamy discharge. Attempts to remove it by a well-directed stream of tepid water proving futile, a cotton-wrapped probe was made use of. The nasal lumen was so narrowed and encroached upon by the hypertrophied turbinated bone and a co-existing deflection of the septum, that some difficulty was experienced in guiding and directing the probe. The parts, as already mentioned, were so sensitive that great persuasion was necessary to induce the patient to submit. Palpation soon revealed the presence of a hard, grating substance occupying the floor of the right nasal fossa. The sensation it imparted being identical with that of osseous structure, I not unnaturally was misled as regards the character of the substance. Its position, its irregular shape, all led me to infer the presence of a necrosed or carious bone. Acting upon this inference, I inquired closely to shed, if possible, any additional light upon what I accordingly considered the result of a constitutional dyscrasia. Thorough inquiry was, however, negative in strengthening the suspicions entertained. His assertions to the contrary, and in face of my inability to establish any trace of constitutional taint, I could not dissuade myself of the osseous nature of the body. Explorative examinations, owing to the sensibility of the parts, yielded but little. Seeing that under the circumstances further examinations and attempts at removal were hardly indicated, all active proceedings were temporarily checked, and the patient was advised to return in a day or two. To allay the morbid sensibility of the parts and to reduce, if possible, the acute swelling of the tissues, a detergent nasal lotion was advised to be used *ad interim*. Its use was certainly effective, as at the next meeting, two days later, there was a marked diminution of this hyper-sensibility and a considerable reduction in the volume of the tumefied mucous membrane. Under a strong illumination the exact position of the foreign body was now satisfactorily defined. Lying on the floor of the nasal fossa in its post-half, it seemed to be impacted between the bony septum and inferior turbinated bone. The exposed surface of the body was rough, uneven and unyielding to the touch of the probe. Former experience proving convincingly, that syringing would be of little or no avail in attempting to dislodge and remove it, instruments were resorted to. For this purpose I used a pair of strong aural forceps bent at right angles, the blades tipped with fine, serrated surfaces. But little difficulty was experienced in getting the body within the grasp of the forceps, however, upon traction, a firm resistance was met with. During the examination the fauces were uncontrollably irritable, defeating all attempts at posterior rhinoscopy. Anterior inspection yielded but limited information, so I apparently underestimated the size of the body. Firmly wedged in the lower meatus, it resisted all attempts to dislodge it and compelled the adoption of other means. Its immo-

bility convinced me that a removal *in toto* anteriorly would be exceedingly difficult if not even impossible. Taking into consideration the narrowed lumen of the nasal passage, such a procedure would have necessarily produced great bruising and injury of the tissues, caused annoying hæmorrhage and much suffering to the patient.

Subsequent endeavors were directed toward reducing the volume of the body and removing it piecemeal. These attempts were but partially successful, as after repeated trials but a diminutive fragment thereof could be detached. This and the objections raised by my patient, who up to this time had borne up bravely, hardly encouraged me to persist in my attempts. It was only now that the feasibility of removing it through the naso-pharyngeal space, presented itself. Fully aware of certain risks thus incurred, I was happy under the circumstances, to avail myself of any decisive measure promising relief. To effect this, I made use of a cotton-wrapped probe.

Cautioning my patient not to inspire deeply or swallow during the act, and carefully guarding the faucial orifice myself, I essayed to force the body into the naso-pharyng. space. It was the work of but a moment and succeeded with astonishing facility. The gentleman, heeding my admonition, in another moment spat out the foreign substance. Darkish gray, almost black in color, conoidal in shape, emitting a highly disagreeable fetor,—all tended for the first moment to confirm the previous diagnosis—necrosis. It was only on closer examination, however, that the true nature of the body was revealed. Its weight, firm consistency, and the pebble-like uniformity of its unexposed surfaces were sufficient to indicate its calcareous nature. Irregular in shape, the contours of the concretion conformed to the confines of the surrounding tissues; a broad, somewhat irregular surface, corresponding to the septum, a smooth, rounded surface to the floor of the nose, and a lateral concave face which bore the impression of the inf. turb. bone. Irregular in shape, resembling somewhat a truncated cone, it is difficult to present exact data as regards its dimensions.

Its medial surface (referring to its position *in situ*) measured 1½ centimeters in length by 1¼ centimeters in breadth, the inferior surface, smaller and rounded, 1½ by ½ centimeters. The medial surface was slightly furrowed and showed distinctly the impression of the serrated edges of the forceps. The exact weight of the concretion was 1½ gram. To assure myself as regards its calcareous nature I detached a small segment with my penknife, and to my great astonishment, found embedded in its mass a large cherry-stone. The etiology of the case was now clear to me. The interest on part of my patient was naturally heightened on learning of the peculiar contents of the concretion. Incidents of early childhood were vividly impressed upon his memory, and he could in no possible manner account for the presence of the cherry-stone. Free nasal respiration was fully restored and great relief experienced immediately after removal. To describe the case in full, it will be interesting to add that I subsequently discovered a small mucous polyp high up in the same nostril under cover and almost hidden by the middle turb. bone.

Rhinolithiasis, a term first applied by Demarquay,[1] is by no means a common occurrence. Stoerk[2] in briefly describing it in his text-book, avers that he has seen but one example of it. It is not surprising then, that no mention is made of it in many works on general surgery. By far the greater number of cases have been observed and described by our French confrères. Both Demarquay and Poinsot[3] have written most comprehensive and exhaustive brochures on this subject.

In the preponderating number of cases on record, the determining cause of the concretion is the presence of a foreign body which forms a nucleus for the deposition of lime salts. Nasal concretions have, however, developed independently, and not due to the presence of any extraneous substances. In these isolated cases the inciting cause, according to Poinsot, may have been a collection of desiccated crusts or scales. The anatomical configuration of the nares no doubt exerts an important influence in the development of such concretions. Congenital or acquired atresia, stenosis of the nasal lumen, favor the retention and subsequent desiccation of nasal secretion. Graefe, according to Durham,[4] considers a gouty diathesis a predisposing cause of rhinolithiasis. Virchow[5] has observed and described a calcareous degeneration of the mucous membrane of the nose and accessory cells, a condition due to the so-called "Diathesis Ossifica." This state is due to an entirely different process, and must be rigidly distinguished from the subject under discussion. As already stated, the presence of a foreign body is generally the primary and inciting cause. With but few exceptions these extraneous bodies are pushed or forced into the anterior nares; an occurrence so common in childhood. It can not be doubted, however, that during an act of vomiting or retching, undigested particles of food may be forced through the naso-pharynx and lodge in the posterior nares. Barring this possibility, in the case under consideration the concretion may be presumed to have been of more than forty years development. In a similar case, lately described by Jacquemart,[6] the trouble existed over twenty years. These concretions are, as a rule, single, but instances are not wanting in the literature on this subject (*vide* Axmann,[7] Kern) in which multiple rhinoliths were found. In size these concretions naturally vary, from that of a lentil (Rouyer[8]) to that of a small plum (Voltolini)[9]. Both Verneuil[10] and Brown[11] have published cases, in which the size of the rhinoliths had prevented their removal

[1] *Archiv. gen. de Med. Juin*, 1845.
[2] Klinik der Krankheiten des Kehlkopfes. Stuttgart, 1880, S. 91.
[3] Diction. de Médecine et Chirurg. Pratiques, TOME XXIV, p. 31.
[4] Holmes, Syst. of Surgery, 1870, vol. iv.
[5] Cellular-pathologie, iv Aufl Berlin, 1871, S. 453.
[6] Annales des Maladies de l'Oreille, etc. Mars 1884, T. x, p. 47.
[7] *American Journal of Med. Scien.* Vol. v, p. 204.
[8] Bull. de la Soc. Anatom., 1857, p. 60.
[9] Anwend. der Galvanokaust. 1872, p. 240.
[10] *Gaz. des Hop.*, 1859, p. 25.
[11] *Edinburg Med. Journ.*, 1859, No. liv, p. 501.

in toto. The dimension of the concretion is to a great extent influenced by its location and confines. The favorite seat for their development is the posterior, inferior part of the nasal fossa; a situation most favorable for the lodging of a foreign body. Upon section the concentric deposition of calcareous matter can be seen in the shape of striæ or lamellæ, the foreign body or a mass of organic detritus forming the nucleus. In the case of Brown the nucleus consisted of a fatty albuminous mass, whilst Phouret[1] records an instance in which there was merely a shell of calcareous matter enclosing a quantity of fetid mucus.

Chemically they are composed principally of carbonate and phosphate of lime. The more recent examinations of Geiger and Bouchardet[2] also demonstrate in many cases the presence of magnesia, salts and alkaline chlorides. Rhinoliths are usually covered with a coating of soft, pultaceous, fetid material composed of epithelial debris, pus and cholesterine. The symptoms incited by the presence of these concretions are frequently not marked and are accordingly overlooked; the rhinorrhœa being regarded and treated as catarrhal. The normal amount of nasal secretion is greatly augmented and takes on a fetid character. Due to the congestion of the tissues, epistaxis is a common occurrence. The chronic vascularity induces a state of hypernutrition and cellular activity in the surrounding tissues, favoring redundancy and neoplastic changes (Billroth[3]); thus the not infrequent conjoint presence of polypi may be accounted for. That these polyps occasionally form an important factor, is illustrated in a case observed by Clark.[4] It was only after the removal of a large mucous polyp, that further examination with a probe revealed the presence of a rhinolith. A noteworthy symptom and one present in many cases is the existence of a hemicrania or nervous headache. The intermittent nature of these attacks in my case is similar to an observation recorded by Verneuil. A case of Axmann's is of interest, as the hemicrania was periodically checked by the spontaneous expulsion of several small concretions. Hack[5] has recently called attention to the reflex neuroses arising from nasal diseases, and the above-mentioned symptom may be included under the same category.

It is generally very difficult and at times almost impossible to determine the nature of the foreign body while *in situ*. In exceptional cases, situated anteriorly, its details may be discerned under a strong illumination and but little difficulty experienced in making a correct diagnosis. In the preponderating number of cases, however, the concretion lies in the posterior part of the nasal fossa embedded in the surrounding mucous membrane and covered with a mass of secretion. Posterior rhinoscopy occasionally renders valuable service in their detection. The sensation it imparts to the probe is so similar to that of bone, that this mode of diagnosis is anything but reliable. In Jacquemart's case, already alluded to, not only the author himself but more than ten consultants had made a previous diagnosis of osteo-sarcoma. With all appliances and means of diagnosis at hand, an error is often unavoidable. In the few cases on record in which rhinoliths were expelled spontaneously, the concretions were very small and in Axmann's case, multiple. Surgical interference is as a rule necessary. Before resorting to instruments for this purpose, less energetic means should be tried. As in the removal of foreign bodies generally, a stream of water injected through the other nostril may in some cases prove effectual in dislodging the concretion. Fraenkel[1] deems the use of sternutatories worthy of trial. These means are generally inadequate and extraction per instrument is indicated. Ere any attempts are made, the parts should be carefully surveyed and the exact position of the concretion determined. Not sufficient stress can be laid upon the necessity of introducing and manipulating instruments under the guidance of the eye—in other words, under illumination of the parts. What havoc, terrible suffering and unnecessary hæmorrhage are so often attributable to the carelessness or recklessness of the operator in this regard. In general, it remains to be doubted whether any part of the body has been dealt with in so slipshod and reprehensory a manner as the nasal cavity. Even at our present day, when nasal surgery has assumed a dignified position these, to say the least, humane precautions are often ruthlessly neglected. The modern status of scientific surgery brands such proceedings as unwarrantable as they are brutal. Judging from this standpoint, even the dictum of the late Pirogoff,[2] who to prevent repullulation of nasal polypi advises the removal of the entire turbinated bones, must lose the weight which would otherwise be attached to it.

Various instruments have been devised for the extraction of rhinoliths. If accessible, a pair of ordinary dressing forceps, or, better still, strong aural forceps bent at right angles, will fully answer the purpose. As is frequently the case, the concretion is firmly wedged in, and must be pried out ere its removal can be accomplished. To effect this, Cohen[3] advises that the point of a knife be passed under the calculus into the soft parts, and it subsequently be pried out by a blunt instrument.

Durham[4] has devised forceps with separable blades, similar to obstetrical forceps. The size of the calculus at times prevents its removal in mass, and measures to reduce its dimensions must be adopted.

Verneuil, previous to extracting a huge rhinolith, crushed it with a sort of lithotrite. In such cases the dental drill could, no doubt, render signal service. If situated at the orifice of the posterior choana, Poinsot advises the use of retro-nasal forceps. In post-nasal extraction strict precautions must be adopted to prevent the concretion from falling into the larynx.

113 Adams street.

[1] *Vide:* Poinsot loc. cit.
[2] *Vide* Poinsot loc. cit.
[3] Bau der Nasenpolypen.
[4] *Med. Annals*, February, 1883.
[5] Erfahrungen aus dem Gebiete der Nasenkrankheiten. Wiesbaden, 1884.

[1] Ziemssen, Krankheit. des Respirations-Apparat. Bd. iv. 1 Heft, S. 189.
[2] Klinische Chirurgie, 3tes. Heft. S. 73. Leipzig, 1854.
[3] Diseases of Throat, p. 390.
[4] Loc. cit.

ETIOLOGY OF PERICARDITIS.

BY JAMES T. WHITTAKER, M.D., OF CINCINNATI.

[Read in the Section of Practice of Medicine and Materia Medica of the American Medical Association. May, 1884.]

Pericarditis is a disease of greater frequency than is generally believed. The statement made by the author of this paper in the Cincinnati Academy of Medicine that pericarditis is ordinarily oftener overlooked than recognized, having been denied by several members, was strikingly confirmed by an ex-interne of one of our largest hospitals, who observed that of the five cases which had occurred in his service, the diagnosis was made in intra vitam in no single case. The existence of the disease in every case was made apparent only on the post-mortem table. Maurice Letulle, *Gaz. Med. de Paris*, 22–50, 1879-80, remarks that of all acute or chronic diseases, pericarditis oftenest runs a latent course.

The failure to recognize pericarditis depends upon the fact that so few of the symptoms of the disease are local. It is only in the face of effusion, and mostly of some magnitude, that signs pertaining to the heart are manifest.

Then if we sum up all the possible causes of pericarditis we observe that in most cases the disease is independent of rheumatism. Rheumatism remains of course the most frequent of any one cause of pericarditis, largely because of the frequency of rheumatism. Rheumatism is the most frequent of a great group of diseases produced by micro-organisms. Any disease produced by micro-organisms may be attended by pericarditis.

Medical teachers and clinicians so often emphasize the fact that pericarditis is a sequel to rheumatism that in the absence of rheumatism the existence of pericarditis is not even suspected. The failure to recognize pericarditis depends largely upon the fact that the existence of the disease is not suspected. For when the suspicions of the practitioner are aroused the diagnosis is generally easy. A striking illustration of this fact I saw in a case that occurred in my practice a few months ago. The patient had been the victim of unsuspected pericarditis, with effusion, for fifteen years, at least the same symptoms had been present in greater or less degree all that time. The prominent symptoms were pallor, dyspnœa, such vertigo as to compel the recumbent position, occasional cough and a pulse so feeble as to fade away when the arm was held at right angles to the body.

Digitalis and alcohol administered from time to time obviated imminent collapse. There was undoubted increase of dullness over the region of the heart which had been taken for dilatation. By aspiration one pound of serum, at first clear, later brownish and flocculent, was withdrawn from the pericardium. The symptoms of immediate danger soon disappeared. But the long pressure and maceration had weakened the walls of the heart to such an extent as to prevent perfect recovery. This was my third case of long continued unsuspected pericarditis with effusion. In every instance inquiry had been made as to the previous existence of rheumatism, and in the absence of it no further attention had been given to the heart. It is not safe to exclude pericarditis in the absence of preëxistent rheumatism, first because pericarditis arises in consequence of so many other conditions, and second because the pericardium may be in rheumatism the first and only joint (so-called) affected.

The frequency of occurrence of pericarditis is best shown by statistics from hospital practice where accurate records are kept and full autopsies are held in all fatal cases. The latest statistics in easy reach are from the general hospital in Vienna. According to the report for 1880, there were treated during the year 23,249 cases of disease of all kinds. Of this number 551, about one-fortieth of the whole number, were cases of rheumatism. However, but 390, about one-sixtieth, were cases of rheumatism of the joints. Pericarditis occurred 32 times, or once in every 726 cases of disease of all kinds. The point of especial interest is the fact that the pericarditis was a sequel or consequence of rheumatism in but six cases, while in 26 cases, that is five times as often, the disease depended upon other causes. Endocarditis, it may be mentioned in passing, occurred but 15 times. Pericarditis was therefore in that year twice as frequent as endocarditis. This ratio may have been an accident, or it may be that endocarditis only seems more frequent, because it leaves valvular lesions. Patients recover or die of pericarditis quickly, as a rule. Cases do not accumulate as in endocarditis.

The older statistics based simply upon clinical observation speak for the greater frequency of endocarditis. Thus Sibson's record shows three times as many cases of endocarditis. But clinical observations can give no precise information regarding the frequency of pericarditis for the very reason that the disease, so often latent, is overlooked.

Exact information in this respect can come only from the dead room. Duchek claims to have found evidences of pericarditis 89 times in 590 post-mortem examinations, that is in a fraction over 15 per cent. of all the autopsies made, and while this ratio must be regarded as an overestimate, for the reason that Duchek included in his diagnosis the cases of so-called milk spots, which are now no longer regarded as pericarditis in the true sense of the term, yet making allowance for the tendinous spots which are especially frequent in ages when true pericarditis is especially infrequent, it is seen that pericarditis is a comparatively frequent disease. Perhaps the statement of Willigk that pericarditis is encountered in 4 per cent. of autopsies is nearer the truth in that this statement is based upon observations made during the earlier periods of life. The relative frequency of pericarditis is dwelt upon, for the reasons, first, that it makes a great difference in prognosis and treatment whether the outside or inside of the heart is affected, and second, because we diagnosticate diseases in the order of frequency. Later observations only serve to confirm the statement of Bauer to the effect that "formerly and up to the close of the last century, pericarditis was considered a rare disease; since then,

it has been proved to be of quite frequent occurrence."

It is universally conceded that pericarditis occurs oftener among males than females. Of the 32 cases cited from the Vienna hospital, 23 were males. Louis says of his 106 cases that only one-fourth were females, a ratio which agrees with the observations of Hache. Bamberger's ratio was 38 males, 25 females. Sibson, who saw the largest proportion of females of any author, observed, nevertheless, the preponderance of males; of his 63 cases 35 were males, 28 females. This ratio points to the greater liability of males to the diseases which cause pericarditis.

Excluding the cases of so-called tendinous spots, which are now regarded as simple friction scleroses or hyperplasiæ of senescence, it is as generally admitted that pericarditis is a disease of youth and maturity. Grisolle and Bamberger unite in the statement that the maximum frequency of the disease occurs between the ages of 20 and 30. The appearance of the disease at any period of advanced life is, of course, not excluded by this statement, and emphasis should be put upon the fact that undoubted cases of pericarditis have been observed in fœtal life; yet the period of occurrence of maximum frequency points unmistakably to the class of diseases most responsible for pericarditis, viz.: the acute infectious diseases.

Just here it may be mentioned that pericarditis occurs in all lands and climes. Hirsch quotes from Morehead the remark "Complicating pericarditis or endocarditis is, I believe, as common in one country as another. Epidemics of pericarditis are cited by Friedreich from Trècomb (1755) in the siege of Rocroy; by Hubert (1814) in the siege of a garrisoned fort, in connection, Friedreich thinks, with pleuropneumonia; and by Lalor in connection with an epidemic of febris continua in Kilkenny in 1848–49. The epidemics of hæmorrhagic pericarditis observed by Seidlitz, Kyber, Himmelstein and others, along the Russian coast, and among the marines, at Moscow, Sebastopol, etc., clearly arose from scurvy.

The relation of occupation to pericarditis has been best shown by Sibson, who observes that "servants formed fully two-thirds of the whole of the female patients affected with pericarditis." Girls engaged in the hard labor of a servant at work, at a tender age, from morning to night, when attacked with rheumatism, to which they are so subject, are all but certain to have inflammation of the heart without or within. They are growing, he says, their frame is not yet knit, they are sensitive to cold and wet, and they are subject to palpitation. It is interesting to note of Sibson's cases that pericarditis occurred in none of his females of sedentary occupation, needlewomen, etc. The influence of hard work is still further proven in the analysis of his male cases. "*Ubi stimulus ibi affluxies.*"

Pericarditis is described in the books as being primary and secondary in its nature, and much confusion exists as to what is meant by primary pericarditis. If by primary is meant a spontaneous or autochthonous inflammation, the term should be discarded altogether, for it may be said that pericarditis never arises in this way. Pericarditis is, strictly speaking, always a secondary or deuteropathic malady. There are met, it is true, occasional cases where the cause has not been or cannot be discovered, and these cases might better be labelled inexplicable than primary. All modern writers agree as to the great rarity of so-called primary pericarditis. Duchek saw only one case in 89, Bamberger but 4 in 63. Friedreich with his wide experience, met but two cases in which he could discover no cause for the disease. Since the field of catching cold is being daily more and more contracted in the etiology of disease, it is wiser to be agnostic regarding inexplicable cases than to appeal to doctrines incapable of demonstration and hence bound to become obsolete.

An etiological division of cases more in accord with existing knowledge would be into consecutive (or mechanical) and infectious (or mycotic). Under the head of consecutive origin would fall the cases of insult or injury to the pericardium from without, as by traumatis, by perforation from a gastric ulcer, from the œsophagus, from an abscess of the spleen, from pulmonary and pleuritic processes, echinococci, aneurisms, caries of the vertabræ, sternum and ribs, mediastinal affections, inflammations of the mammæ, skin diseases—in short, all involvements of the pericardium by contiguity or continuity of structure, including under this head also extensions of inflammation from the heart itself.

While these cases of so-called mechanical origin form a respectable contingent of all the cases, they nevertheless remain in the minority, all combined, when compared with the inflammations or processes secondary to the infectious diseases. As these mechanical causes of the disease are for the most part apparent, or may be discovered by careful search, and as the pericarditis in these cases is only an accident, so to speak, in the history of the original malady, they may be properly relegated to chapters on the possible complications of the various maladies.

Pericarditis proper belongs as a link in the chain of the acute infections. Probably the time is not far distant when separate forms of the disease will be recognized as dependent upon different etiological factors. Just as we now recognize as very different affections, the inflammation of the lungs produced by a trauma, by an embolus, an abscess, a catarrhal process, etc, from a true croupous pneumonia, we may come to consider as a separate affection the pericarditis which develops in the course of the infections in consequence of the immigration into its structure of micro-organisms.

There are special reasons why these micro-organisms come to be deposited by preference in the serous membranes and by especial preference in the pericardium. In the first place, the circulation in these structures is very sluggish, is stagnant at times, and just as uric acid in gout comes to be deposited guttatim in the big-toe joint, over the knuckles, in the lobule of the ear, etc., places where the circulation of the blood is slowest, border lines of the circulation, as it were, so micro-organisms come to be colonized in the serous membranes. In the second place, the lymph vessels are so exceedingly abundant in all serous membranes

as to make of them veritable lymph sacs, whose delicate canalicular walls offer no obstacle to the rapid egress of migratory blood corpuscles, to say nothing of the infinitely more minute, and in some cases, more actively moving micro-organisms.

Whatever the explanation, the fact remains as long ago observed that all the infectious diseases are liable to be complicated by pericarditis. In former times it was the habit to refer this complication to differences in the chemical admixture of the blood, or to ferments in the blood. In our day the affections of the serous membranes are explained by the presence of schyzomycetes.

It is well known that the pericardium is not alike affected by all infections. Certain forms of them show distinct predilection for this structure, and so notoriously is this true of acute polyarticular arthritis, that it is, as has been stated, the habit of many practitioners to exclude pericarditis in its absence. It is undoubtedly true that acute joint rheumatism remains the most prominent factor in the etiology of pericarditis, that it causes, or better, is attended with more cases than any other one factor; Bamberger claims that 30 per cent., Chambers and Thompson 16 and 20 per cent. of cases arise from rheumatism; but it is equally true that there is no other acute infection which may not be followed by pericarditis.

If pericarditis is to occur in rheumatism, it shows itself by preference between the fourth and fourteenth days of the disease. While it is always a possibility in mild, brief or protracted cases, the rheumatisms marked by severity or fugacity are rather more liable to entail pericarditis. But it is the youth of the patient that is of all the most inviting or predisposing element. The young of all animals show much greater susceptibility than the old to all the mycoses.

It is not the intention to underestimate the role of rheumatism in the production of pericarditis, but to show cause for it, and more especially to emphasize the fact that almost any of the acute infections may act in the same way.

Next in frequency to acute joint rheumatism in the pathogeny of pericarditis comes pleurisy. Morgagni and Corvisart remarked this complication in their day. Duchek claims to have seen in 43 cases of fresh pericarditis an associate pleurisy 22 times; but inasmuch as the freshness or age of the pleurisy is not remarked, it is fair to infer that the order of sequence, in some of the cases at least, may have been reversed. In Bamberger's cases of pericarditis, 10.5 per cent. arose from pleurisy and pneumonia.

Tuberculosis affects the pericardium in both ways. That is the process may by contiguity inflame or a vomica open up the pericardium to produce the disease in a mechanical way. Or the micro-organisms of tuberculosis may lodge and multiply upon the serous surface, just as upon the cerebral meninges or tunica vaginalis, as conveyed thither in the lymph and blood supply. Bamberger's statistics show pericarditis in 14 per cent. of cases of pulmonary phthisis, but it is impossible to eliminate the role of pleurisy in any of these cases.

I can find no statistics declaring the relative frequency of pericarditis in the various acute infections, although it is stated in the history of nearly all of them that this complication does occur.

In pyæmia and septicæmia as typically represented in traumata and puerperal fever (so-called), pericarditis with its frequent associate endocarditis is the complication which directly or indirectly is the most frequent immediate cause of death. It occurs in all three forms of typhus, the exanthematic, recurrent, but most rarely in the abdominal form. Measles, scarlet fever and small-pox are attended with pericarditis occasionally only in the less severe, as a rule in the malignant form of these diseases. It is not very rare in cholera, and is quite common in epidemic dysentery along with or independent of the rheumatism which sometimes follows dysentery. In erysipelas, diphtheria, cerebro-spinal meningitis, pericarditis not infrequently constitutes the last link of the disease process. These are all diseases in which there is already either positive or strong presumptive evidence of mycotic origin.

But pericarditis may ensue upon even the lightest infections. Perhaps one of the most interesting statements that could be made in illustration of this fact is that of Bednar, who several times observed pericarditis supervene after vaccination. In one case an acute dermatitis developed in 24 hours after vaccination with a simultaneous pericarditis. In a second case, a sharp diarrhœa, subcutaneous abscesses and pericarditis proved the order of sequence. In a third case the pericarditis developed on the thirteenth day after vaccination without intervening disease.

In Bednar's 36 cases of pericarditis the disease was found independent of other demonstrable lesions only four times. Thirty of these cases occurred within the first month of life, four in the second, and one in the third and fourth months. In all cases the disease was attributable to puerperal processes in the mother which, in the author's words, "extended their injurious effects to the child, and in consequence of acute decomposition of the blood developed fibrinous or purulent exudations in various organs, and frequently in the pericardium. The disease proved fatal, as a rule, within the first 16 days of life."

Since the investigations of Klebs and Koester have shown of endocarditis that the mild, so-called acute or later verrucose forms, as well as the malignant or ulcerative forms, are of mycotic origin; that the difference is in degree, not in kind, and that micro-organisms can be demonstrated even though no source of immigration can be discovered, the nature of endocarditis seems well understood.

Endocarditis and pericarditis are very frequently found associate. The older clinicians speak of endo-pericarditis just as they speak of pleuro-pneumonia. It is therefore safe to infer, so far as it is safe to infer anything, that pericarditis, independent of the consecutive cases, is part of a general mycosis. The prophylaxis and treatment of the disease based upon what is known of its etiology, that is the rational or scientific treatment, calls for the antimycotics, cold and rest.

THE INFLUENCE OF CLIMATE ON THE TREATMENT OF CHRONIC CATARRH OF THE MIDDLE EAR.

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[Read in Section of Ophthalmology, Otology and Laryngology of the American Medical Association, May 7, 1884]

St. Paul, Minn.

While I cannot, from the nature of the subject, give anything in this paper that is new to the experienced aurist, I hope to elicit a discussion and by so doing obtain the views held by American aurists upon a subject of immense importance. A little more than three years ago, in a private conversation with Dr. Francis Atwood, he made the remark that cases of chronic catarrh of the middle ear improved rapidly under the influence of the Minnesota climate.

Dr. Atwood had a large practice and wide experience in treating this class of cases, extending over nine years of active work. He also had the opportunity to study the contrast in the results of treatment in a climate like that of Boston and that of Minnesota, and was deeply impressed with the far more encouraging results obtained in the latter climate.

Since that time I have been investigating the subject, and propose to give the results of the investigation in this paper.

In looking up the literature of the subject I find that but little has been written in regard to climate as a remedial agent in the treatment of this most distressing and obstinate disease. This is all the more surprising when we take into consideration the fact that nearly all the remedies known to therapeutics have been resorted to and have failed lamentably in the treatment of chronic otitis media. One remedy after another has been tried, only to be abandoned after having been tested by the great regulator—clinical experience. The importance of climate in the treatment of diseases of a similar nature in other organs on the one hand, and the very serious nature of the disease of which we speak on the other, will suggest at once the great practical interest of our subject.

For chronic non-suppurative diseases of the middle ear do not only constitute about one-half of the cases that we are called upon to treat in private practice (Roosa), but give rise to some of the most annoying symptoms that we are ever asked to relieve; which in their worst form are a constant source of terrible annoyance, leading the unfortunate victims sometimes to seek relief by suicide or by ending their days in an insane asylum. A disease which if neglected or maltreated and allowed to progress becomes as incurable as glaucoma absolutum or atrophy of the optic nerve.

These considerations impress upon us the importance of resorting to every possible means of getting control of the malady at the earliest possible stage, and putting the patient under the most favorable surroundings to obtain relief. However widely otologists may disagree as to certain factors in the treatment of chronic otitis media, there is a perfect unanimity of opinion among them that the most important part of the local treatment is stimulation, not only of the mucous membrane of the tympanum, but that of the Eustachian tube and posterior nares.

Even the most conservative make use of mild stimulants, such as hot steam, vapor of iodine, ether or chloroform. Although they may not agree with the more heroic, who resort to vapors of turpentine, sal ammoniac and acetic acid, or the still more heroic, who make use of inter-tympanic injections of solution caustic potash, caustic soda, chloral hydrate and the various astringents. Although most of these have been discarded by the intelligent aurist of the present day, yet the rational of the treatment remains the same, viz.: To stimulate the parts, tone up the relaxed tissues and blood-vessels, and encourage absorption of the exudative or inflammatory products. My own experience would indicate that these processes of repair receive valuable assistance in a cold and stimulating atmosphere in which there is a minimum amount of moisture.

Every otologist must have felt that after the membrani tympani has been forced into its proper position, and the hyperæmia of the drum cavity disposed of, the bands of adhesion broken up, or if possible divided, after the rigid and sclerosed condition of the parts has received the best possible attention, and the Eustachian tube has been made pervious to air, still there remains something to be done.

This is best accomplished, I think, by placing the patients under the most favorable climatic influence, it being the most powerful agency for the relief of this condition.

Dr. Pomeroy, in his most excellent and practical work (Diseases of the Ear), says: "A change of climate often relieves a hyperæmic condition of the tympanum in a few hours or days."

Politzer, probably the greatest living authority on diseases of the ear, says: "Change of air and residence in a mountainous country have a very favorable influence upon the course of chronic otitis media.

"In patients in whom the local treatment continued for months remained without results, I have observed pretty often a complete cure when they left the town and lived for several months in a mountainous region."

Certainly no higher authority could be referred to, nor stronger statement made, in regard to the efficacy of the climatic treatment of chronic otitis media. There is a wide difference of opinion among general practitioners as to which is the more favorable for phthisical patients—cold or warm climate. But the best authorities seem to agree, that prior to the stage of breaking down of tissue and the formation of cavities, such cases do better in a cold climate. And just so it is with the middle ear catarrhs. The non-suppurative forms of the trouble improve, but the suppurative cases do badly.

I have many cases on my note-book to show that patients suffering with chronic otitis media improve rapidly under the influence of our Minnesota and Dakota climate, but that cases of chronic suppuration become rapidly worse or extremely obstinate, but improve when sent to a milder and warmer climate.

When we are reminded that little or no dependence can be put in therapeutic agencies, and that all forms of treatment are highly unsatisfactory, and that the experience of the best aurists has proven that much good can be accomplished by a change of situation, it seems strange that it has not been more extensively resorted to. Perhaps one reason is the slow and tedious nature of the disease, it being difficult to get the patients to realize that it is necessary for them to make a business of getting well.

But what climate shall we select for these patients? If made hap-hazard without regard to the wants of the individual cases, more harm than good is likely to result.

This introduces the subject of humidity, altitude, temperature, ozone, duration and velocity of the winds and the country over which they blow, elevation above the level of the sea, sea voyages, atmospheric pressure, etc.

These are subjects which can only be hinted at here as they have not yet been studied in regard to their effect on aural troubles.

In order to show the assistance which our own climate gives in the treatment of chronic catarrh of the tympanum, I wish to analyze one hundred cases that I have treated, fifty of which were treated in St. Paul and fifty in Altoona, Pa. The average duration of the disease in the Altoona cases, four years; but of the St. Paul cases, five years.

The treatment was the same in both places, its average time in all cases here reported was three months.

In Altoona the number of cases cured were four; improved nine; and unimproved twenty-seven.

Of the St. Paul cases, eighteen were cured; twenty improved, and twelve unimproved.

What I mean by cured, is that the acuteness of hearing comes up nearly to a normal standard, and the subjective symptoms have disappeared. So the results obtained were vastly superior in Minnesota, and so far as I have been able to ascertain this has been the same experience as other otologists who have had the opportunity to study the effect of this most excellent climate on chronic otitis media. The season of the year in which these cases do best is from the first of Sept. to the latter part of Nov., during which time there are not so many sudden changes, and there is a combination of atmospheric conditions which render the climate as pleasant and exhilarating and bracing as can be found on the globe.

The most perfect sunshine, lasting for days and months during a favorable season gives rise to a sensation of stimulation that is the delight and astonishment of every new comer.

A number of cases have come under my observation, who have been vastly improved by the climate alone. One of the chief factors in bringing about these good results is the dryness of our atmosphere. It is a fact which needs no demonstration that the amount of humidity of any locality depends largely on the source of its winds, they being the great water distributors of the earth.

Minnesota is so situated that the winds that reach her are robbed of the greater part of their moisture; this is the case both in winter and summer. The prevailing winds of fall and winter are the returning trades from the Pacific Ocean which have lost their moisture on the different mountain ranges of the far west, having come to us over half the continent (Staples.) It is well to notice also in this connection the difference between the north and east winds of Minnesota and those of the Eastern States.

To the latter States these winds blow over the region of the Great Lakes, Hudson's Bay and the Atlantic Ocean; but these winds blow over a vast area of territory as large as all of the United States east of the Mississippi River before they reach Minnesota. And so with the southern winds of summer, while they have sufficient humidity to be essential to life and vegetation, they are not over-charged with moisture like the Eastern and Southern States. The absolute humidity per cubic foot at St. Paul is 0.92 grains; at Jacksonville, Fla., it is 3.81 grains, and at San Antonio, Texas, it is 3.51 grains; thus the humidity is three times greater in Florida.

Another source of benefit is the invigorating influence of the bracing tonic atmosphere that rapidly builds up the general health.

Dr. Jones, of St. Paul, who has made a faithful investigation and a special study of our climate, says: "There is an increased demand for food, and an increased ability to digest it.

"The power of assimulation being strengthened, there results as a natural consequence, an evolution of muscular, nervous and glandular force."

It can be easily understood how this, both directly and indirectly, exercises a most favorable influence upon the pathological condition of the middle ear caused by the chronic catarrh process, by stimulating the parts locally and by toning up the general health, assists in the absorption of the inflammatory products, and in restoring the delicate mucous membrane to a healthy condition.

The following case illustrates well the powerful assistance given by climate in the treatment of chronic aural catarrh.

The patient first came under my care in Altoona, Pa. He was twenty-four years of age and had been annoyed by the disease for five years.

He complained of constant tinnitus, a feeling of fulness in both ears and at times pains would radiate in different directions from the ears. At regular intervals he was much annoyed by vertigo and was extremely anxious to be relieved. He was also a victim of nasal catarrh of a severe type, the mucous membrane of his nose being very irritable; when out driving it would swell up so as to completely obstruct nasal respiration. He had considerable trouble in following rapid conversation.

Both ear drums had lost their transparency, and presented the usual appearance so characteristic of chronic catarrh of the middle ear. They were some-

what sunken, and the handle and short process of the malleus quite prominent.

He could hear the watch only on contact; but bone conduction as tested by the tuning fork was good. This case was under treatment for about six months in Pennsylvania, with only negative results. At times it seemed as though some of the symptoms were relieved, only to return with increased severity.

Now this same case came under treatment again in St. Paul, and was submitted to the same treatment, but with far different result. The patient acknowledged marked improvement within a few days. He lost his sensation of fulness and ceased to be annoyed by the pain, and the attacks of vertigo were altogether removed.

That which was still more satisfactory, was the marked improvement in the acuteness of hearing, as attested by the watch and the voice.

This case shows to a remarkable degree what can be accomplished by a change of situation and the influence of a stimulating atmosphere in the treatment of this most obstinate and extremely annoying disease.

I have a number of other cases on my note-book who have been treated in other climates without receiving benefit, but who improved rapidly under the stimulating influence of the Minnesota climate. The best results, however, were obtained with those cases that had come recently from other countries, the cases which originated in our climate being the most obstinate. Another agency that may have some influence in bringing about these favorable issues is the electrical potential.

Unfortunately, no instruments have yet been devised to accurately record the relationship of this element to certain localities.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

Iodide of Potassium in Pneumonia.—Dr. Luigi Gualdi, of Rome (*Lancet*) considers (with Schwarz) pneumonia not as a local disease with general symptoms, but as a general disease with local effects. He gives the iodide of potassium in forty-centigramme doses every two hours, at the same time applying the ice-bag over the seat of pulmonary inflammation. In thirty-nine cases in which he practiced this treatment he had excellent results. In all, without distinction, he observed that the sputum, from being viscid and tenacious, became, before the second day, fluid, resembling bloody serum; that with the cessation of the fever the exhaustion also ceased, although the physical state of the lung was not improved—nay, in some cases aggravated; and, finally, that in all the convalescents the appetite was so sharpened that the ordinary diet had to be considerably increased. The mortality was 6 per cent., while of the two who died one could not be included in the calculation, because, being affected with pneumonia of the apex with furious delirium, he took only two grammes of the iodide of potassium. It is worth remarking, continues Dr. Gualdi, that the fever and the exhaustion ceased, although the physical condition of the lung remained unchanged, thereby confirming Schwarz's position that the fever is independent of local alterations; also Jürgensen's contention that the cause of the exhaustion resides not in the change in the lung, but in the fever, seems to be similarly confirmed. Dr. Gualdi concludes that from his experience the treatment by the iodide succeeds better with the youth of either sex than with adults; that the iodide should be exhibited at the beginning of the disease, to insure an immediate and perfect result; that the iodide is efficacious over the fever and the exhaustion, but not over the localization, which latter indeed may even be extended under the treatment; that the iodine and potassium combined separate in the organism, so that each has its special virtue; and, finally, that the action of the ice is secondary, inasmuch as it operates on the effects, and not on the cause of the disease. It is useful in the congestive stage, hurtful when the contents of the air-cells are already solidified and the lung indurated.

Action of Certain Medicines on the Cerebral Circulation.—Curci (*lo Sperimentale, Italia Medica, Jour. de Med.*) employs an experimental method, based on the estimation of the increase or diminution of the cerebral mass, as influenced by the amount of blood flowing through its vessels; if a certain medicine produces an augmentation, it is considered as producing hyperæmia, and the contrary if a diminution.

The cranium of the animal being trephined and the brain exposed, a canula of the same diameter, and open at the two extremities, is introduced into the perforation. The free extremity is connected with a tube, which is in turn connected with a manometer of water. The whole of the apparatus must be hermetically closed and filled with fluid—the manometer with colored water, the rest, and especially the canula, with oil. The advantage of the oil is that while it bathes directly the surface of the brain, it is not absorbed, and consequently does not diminish in quantity, which eliminates a chance for error. The manometer tube is only 3 millimetres, which renders the changes in its level the more appreciable.

It is necessary to bear in mind the fact that the efforts of the animal will of themselves influence the level of the fluid, and by patience wait until the animal becomes calm before beginning the experiments, as calmatives cannot be given.

Chloroform and ether produce a relative anæmia of the brain.

Hydrate of chloral was found to produce weaker cerebral pulsations than normal, the author considering that the blood pressure in the longitudinal sinus descended considerably under its influence. Consequently, if the diminution of the cerebral mass on the one hand, and the lowering of venous tension on the other, be considered, it follows that the blood flow diminishes, and that there is a certain degree of cerebral anæmia.

Paraldehyde. This new drug gave results identical with those of chloral, viz., diminution of the cere-

bral mass, from which was deduced a diminution in the flow of blood to the brain, and consequently relative anæmia.

Therefore, chloral and paraldehyde are indicated as hypnotics in all cases where there is hyperæmia or inflammation of the brain, but their use is not justified in degeneration, atrophy, etc.

Nitrite of amyl produced a considerable increase in the cerebral pulsations, and its use in syncopes and cerebral anæmia is, consequently, justifiable.

Morphine produced an augmentation of cerebral volume and vascular tension, and is, consequently, a hyperæmiant.

Atropine produced such contradictory results as to render any positive conclusion difficult, but in a large dose a constriction of the vessels was observed, and the brain became pale and diminished in size, so that the drug was considered as an anæmiant of the brain.

Quinine had more of a tendency to produce anæmia than hyperæmia of the brain. It counteracts the hyperæmic action of morphine. Therefore, quinine is not contra-indicated in those diseases liable to cerebral hyperæmia, but its use, on the contrary, is justifiable. Quinine has been found useful in insolation, probably from its tendency to counteract hyperæmia.

MEDICINE.

ON A LITTLE KNOWN SYMPTOM OF SCIATICA.—Beurmann (*Archives de Physiologie Normale et Pathologique*) draws attention to a sign which is not noticed in the classical description of sciatica, which is readily recognized by the bed-side of the patient, and which is sometimes of very considerable diagnostic value.

The patient is made to lie in his bed on his back, and is told to allow the affected leg to lie perfectly passive. If now, with the leg fully extended, the physician flexes it at the hip, the patient at once experiences acute pain, darting down the course of the nerve from the buttock downwards, and which is most severely felt in the neighborhood of the great trochanter. If, however, the leg be first flexed upon the thigh before the thigh is flexed upon the abdomen, it will be found that no such pain results from the movement.

It would seem that this pain is due to tension of the sciatic nerve, which, with the first of these movements, is considerable, but which does not take place with the second.

That this hypothesis is correct, Beurmann abundantly proves by various experiments which he conducted on the dead subject.

This sign of sciatica appears to possess very considerable diagnostic value, and will probably suffice at once to distinguish sciatica from several conditions, which may simulate it, such as crural neuralgia, hip-joint disease, etc.—*Edinburgh Clinical Journal.*

ON PEPTONURIA.—M. Ch. E. Noury has written a thesis on this subject, the review of which in the *Annales des Maladies des Organes Genito-Urinaires*, in which he gives 1, the history of the subject; 2, a description of the principal methods used for determining the presence of peptones in the urine; 3, an examination of the pathological conditions coexisting with peptonuria; and 4, the pathogenic interpretation of this symptom and its clinical importance. He arrives at the following conclusions:

1. The peptone is found in the urine of certain patients. Among the methods used to determine its presence, those given by Hofmeister are the only reliable ones. (Precipitation by alcohol, tannic acid, and phosphotungstic acid).

2. Peptonuria is found in two distinct groups of diseases; one local (pleurisy, chronic catarrh of the bronchi), the other general (scorbutis, phosphorus poisoning, etc.)

3. In the local affections, peptonuria is associated with the resorption of an exudation rich in cellular elements.

4. In these cases, the conditions which influence the appearance, the progress, the abundance and the duration of peptonuria are connected on the one hand with the exudation itself (its abundance, richness in globules, disorganization and the more or less rapid reabsorption of these same globules), and on the other hand with the condition of the walls which enclose it, (extent of surface, permeability, duration of the affection).

5. In the general affections, the peptonuria seems to be connected with a disorganization *en masse* of the leucocytes.

6. In all cases, it is independent of albuminuria as well as the state of the temperature of the body.

7. Peptonuria suffices, in many affections, to account for certain clinical episodes; but its application to diagnosis is of value only in certain extremely restricted circumstances.

ON THE ELIMINATION OF MERCURY BY THE KIDNEYS.—Dr. Schuster (*Centralblatt f. die Med. Wissensch., Journal de Med.*)declares that the elimination of mercury takes place not only by the intestine, but also by the kidneys. It seems that this has heretofore been overlooked, owing to the want of use of proper reagents to detect mercury in the urine. Urine acidulated by hydrochloric acid and submitted to a current of sulphuretted hydrogen and then allowed to stand for twenty-four hours, will give a sediment containing sulphate of mercury, uric acid, mucus, etc. It is separated by filtration, and the sediment which remains in the filter, is treated with nitromuriatic acid and then dried until it no longer gives off the nitric acid vapors. The residue is dissolved in about 10 grammes of water, and, after being slightly acidulated, is treated according to the ordinary method of Fürbringer. By this method it is possible to detect $^1/_{10}$ of a milligramme of mercury in the urine.

The excretion of mercury after an ordinary treatment by friction continues for six months.

SCLEROSIS OF CARDIAC ORIGIN.—Dr. Jules Boy (*Marseille Medical, Journal de Médecine*) tells us:

1. That while we have a cardiac hepatic and cardiac renal sclerosis, we have also a cardiac pulmonary sclerosis.

2. That this pulmonary sclerosis is systematic and corresponds exactly to the changes found in the liver and kidney.

3. Diffused points of sclerosis are found, scattered throughout the parenchyma and accidentally produced.

4. This cirrhosis is characterized by a thickening of the peri and intra-lobular tissue, the thickening of the inter-alveolar partitions progressing so far as sometimes to obliterate the alveoli, by the dilatation of the vascular system with thickening of the tunica adventitia of the vessels, and by the constant presence of arterial lesions.

5. The principal changes are the stasis of blood and permanent dilatation of the vessels, a condition of the epithelium similar to Charcot's visceral epithelial cirrhoses, in the arterial system and in the dyscrasia.

Rupture of an Aneurism of the Cystic Artery into the Gall Bladder.—Chiari (*Journ. de Med.*) gives the case of a man 33 years of age, who suffered for a long time from cardialgia, and died suddenly with intestinal hæmorrhage. At the autopsy a perforation of the superior portion of the duodenum was found, which communicated with the gall bladder by a sort of crossway bounded by the liver, the epiploon and the duodenum itself. The gall bladder contained some calculi and blood; on its hepatic wall there was a small aneurismal tumor 2 centimeters long, and 1 broad, that communicated with its cavity by a slit of 3 millimeters (superior cystic artery). A smaller bloody tumor, which was the seat of a thrombosis, was situated lower down on the gall bladder (inferior cystic artery). Medical literature mentions only four cases of rupture of aneurism of the hepatic artery into the bile passages.

A Pulmonary Cavity Healed by Injections of Nitrate of Silver.—In *El Siglio Medical* is recorded the case of a peasant of 26 years who contracted a pneumonia which passed into a chronic state and produced a purulent expectoration and an extreme emaciation. Dr. Maragliano determined the presence of a cavity at the base of the right lung. Judging all other medication to be useless he injected a gramme of nitrate of silver, dissolved in 25 grammes of distilled water. The pain was very acute for two hours, and then disappeared; the frequency of the pulse and the fever diminished. The expectoration increased for several days, but then diminished progressively and recovered its normal characteristics. One year later the cicatrization of the cavity was complete. A second case was similarly treated at Madrid, but with an unfavorable result.—*Journal de Médecine.*

Experimental Researches on the Injection of Medicines into the Pulmonary Tissue.—Frankel (*Deutsch. Med. Wochenschrift*), seems from his experiments to have determined the fact of great tolerance on the part of the lung to various irritating agents. He used solutions of 2 to 5 p. c. of acetate of alumina, 1 to 5 p. c. of carbolic acid, 5 p. c. of iodoform. The injections were made sometimes many times a day, sometimes at intervals of several days. Generally no functional reaction followed, in some exceptional cases there were paroxysms of coughing, but only when a bronchus was pierced, for the toleration of the pleura and parenchyma was complete. Anatomically there was found in the pleural cavity a coffee spoon full of blood, the pulmonary parenchyma being infiltrated with blood to the thickness of 1 centimeter; this being reabsorbed or undergoing a retrogression resulting in the formation of a slight cicatrix. The author considers that the results of these experiments would seem to authorize the employment of medical injections in phthisis where the process is localized and accessible; the diseased tissue undergoes a substitutive modification before hastening the work of cicatrization; in the neighborhood of deposits, a cicatricial zone is created which forms a rampart against the invasion of the process.

The Cost of Sickness.—I think, then, that we can not escape from the reasons to believe that we lose in England and Wales, every year, in consequence of sickness, 20,000,000 weeks' work; or, say, as much work as 20,000,000 healthy people would do in a week.

The number is not easily grasped by the mind. It is equal to about one-fortieth part of the work done in each year by the whole population between 15 and 65 years old. Or, try to think of it in money. Rather more than half of it is lost by those whom the registrar-general names the domestic, the agricultural, and the industrial classes. There are more than 7,500,000 in number, and they lose about 11,000,000 weeks; say, for easy reckoning, at £1 a week; and here is a loss of $11,000,000 sterling from what should be the annual wealth of the country. For the other classes, who are estimated as losing the other 9,000,000 weeks' work, it would be hard and unfair to make a guess in any known coin; for these include our great merchants, our judges and lawyers, and medical men, our statesmen, and chief legislators; they include our poets and writers of all kinds, musicians, painters, and philosophers; and our princes, who certainly do more for the wealth and welfare of the country than can be told in money.—*Sir James Paget, in Popular Science Monthly.*

EXIT OF SCIENTISTS FROM MONTREAL.

Montreal, Canada, Sept. 4.—Two special trains left this morning, one having on board 300 British scientists bound for Philadelphia to attend the American Association meeting, and the other 200 scientists for the Rocky mountains. The presence of so large a number of eminent scientific men from Great Britain will add much to the interest of the meeting of the American Association for the Advancement of Science, now in session in Philadelphia.

THE

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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HASTY GENERALIZATIONS.—Of all the faults that characterize medical literature, those arising from hasty generalizations, by which we mean the deduction of conclusions from an insufficient number or an inadequate verification of facts, are the most prominent, and constitute the greatest hindrances to real progress in nearly all the departments of medical science.

Next in baneful influence is the adoption and treatment of mere opinions or even suggestions, as though they were actual facts. From the simple facts that the elements of our food may be arranged, chemically, into nitrogenous and carbonaceous, and that the latter out of the living body are capable of uniting with oxygen and evolving heat, a Liebig announces the opinion that the nitrogenous elements of food are appropriated to the repair of the living tissues, and the carbonaceous to combustion and the support of temperature. Straightway this opinion is accepted, incorporated into our medical literature, and acted upon as implicitly and universally as though it had been the announcement of a clearly demonstrated fact. And yet it would puzzle the most erudite, even at this late day, to point out any facts which prove that the two classes of alimentary elements play any such separate role in the living body as has been assigned to them.

Cases of an epidemic disease make their appearance in a given locality, and instead of patiently waiting until their origin, or at least all the ascertainable facts connected therewith, can be carefully investigated and placed on record, every writer and speaker at once *suggests* an origin which will suit his preconceived theories concerning the nature of the disease, often entirely regardless of all the actual facts in the case. And yet these naked suggestions are accepted, incorporated with the history of the epidemic in medical journals, and ultimately quoted in standard works, invested with all the attributes of established facts of science. The appearance of the present cholera epidemic in Toulon affords a good example of the practice we are deprecating. When the outbreak was first announced, it was represented as having started in the oldest, most filthy part of the city, and among the most destitute and unsanitary part of the population. Not a word was said about its connection with ships or sailors from any quarter. Next, however, it was stated to have been brought in some naval vessel from Tonquin or some port of China. But no facts were given to show that the accused vessel had actually come from a place where cholera was prevailing, or that any cases had occurred on board, either before her arrival or afterwards. Next, Dr. Koch is reported as making the rather ungracious remark that it was introduced by some English vessel whose officers had falsified her bill of health. And finally, we have the positive and circumstantial report that the two first cases at Toulon, occurred in marines who had been employed in removing some materials or rubbish from an old hulk in the harbor which had lain undisturbed since the return from the siege of Sebastopol in 1856; it being presumed that the germs of the disease had been slumbering there in undisturbed concealement during all the intervening twenty-eight years. And yet since the first *suggestion* concerning the importation of the disease on some ship, almost every writer, both in the secular and medical press, has assumed that such importation took place with as much positiveness, as if each step in the process had been fully identified by actual investigation of all the facts bearing on the case.

In the natural order of events these *assumptions* in the present current literature will be quoted as facts by the historians and investigators of the next generation. Again Dr. Koch, after finding a number of microbes of different varieties in the intestines and intestinal dejections of cholera patients, selects one which he suggests, after a limited number of post-mortem examinations, is peculiar to and causative of the disease. His suggestion that this particular comma bacillus or spirillum is *always* present in the intestines of epidemic cholera patients, and not in those of patients affected with any other form of disease, is accepted by a large part of the profession

with as much apparent confidence as though it had been possible for Dr. Koch, or any other one man, since he first entered upon his cholera investigations in Egypt little more than one year since, to have examined not only an adequate number of cases of cholera, but also of such number and variety of other diseases, as to justify both the positive and negative part of his suggestion. The finding of a particular microbe in the intestines of one hundred consecutive cases of epidemic cholera, would go far to prove that such microbe was always present in that form of disease, not necessarily as a cause, but certainly as an accompaniment.

But to assert that the same microbe is found in no other form of disease, presumes a scope of actual post-mortem and microscopical investigation that would occupy one man nearer a life-time than the short space of a single year.

Indeed such investigations can never conduct us to actually reliable results until they have been repeated by numerous qualified observers, in several epidemics, in different localities, and also in a wide circle of collateral diseases.

We do not disparage, but honor Dr. Koch and all other skillful investigators in the different departments of science; but we are getting well-nigh weary with half a century of experience in the process of unlearning one year what we thought we had learned the year previous, and of seeing the time of one-half of the world's investigators consumed in disproving and correcting the too hasty deductions of the other half. Our professional and scientific investigators, and indeed the whole profession, need more industry in the observance and aggregation of facts, more logical study of their relations when aggregated, and far more patience and caution in the deduction of important conclusions which are to influence both our dealings with disease at the bed-side of the sick, and guide our efforts to afford sanitary protection to communities and nations.

International Medical Congress at Copenhagen.—At the recent meeting of this great international organization, there appears to have been present a very fair representation from the profession of our country. Among them were several who read papers in some of the Sections. In the Section of General Pathology and Pathological Anatomy, Dr. Samuel N. Nelson presented a paper on the "Cultures of the Micrococcus of Diphtheria;" in the Section of Medicine, Prof. Austin Flint, of New York, had a communication "On a Uniform Nomenclature of Auscultatory Sounds in the Diagnosis of Diseases of the Chest;" in the Section of Surgery, Prof. Sayre, of New York, demonstrated the application of the plaster jacket in the treatment of diseases and deformities of the spine; in the Section of Obstetrics and Gynæcology was announced a paper "On a New Operation for the Restoration of the Ruptured Perinæum," by Dr. Henry O. Marcy, of Boston; in that of Ophthalmology, a paper on Ocular Therapeutics, by Dr. W. Seely, of Cincinnati; in that of Laryngology, a paper on the Prognostic Significance of the Several Local Manifestations Observed in Tuberculosis of the Larynx, by Dr. Solis Cohen, of Philadelphia; one on the Operative Removal of Foreign Bodies and Pseudoplasms from the Air-Passages, by Dr. Lefferts, of New York, and another on the Proper Method of Training of the Singing Voice, by Dr. Bosworth, of New York; in the Section of Otology, a paper on the Diagnosis of Inter-Cranial Complications in Suppurative Inflammation of the Middle-Ear, by Dr. Orme-Green, of Boston; and in the Section of Dermatology and Syphilis, a paper on New Methods and Remedies in the Treatment of Diseases of the Skin, by Dr. J. V. Shoemaker, of Philadelphia.

An abstract of the last paper may be found in another part of this number of the Journal. The principal languages used in the papers and discussions were the French, German and English. A brief account of the general scientific and social features of the assemblage will be found under the head of Foreign Correspondence.

Yellow Fever.—This justly dreaded disease continues to prevail severely in several places in Mexico, Central America, and the West Indies, but thus far appears to have become prevalent in no part of our own country. Its position in Mexico is such as to create constant apprehension in the adjoining parts of Texas. The case that occurred in one of the ports of Florida has been followed by no others, and the same result has followed the reported cases at other ports.

Progress of the Cholera in Europe.—During the last week the epidemic appears to have increased more rapidly than before, and is now prevailing not only in the south part of France, but in many parts of Italy and Spain. Its progress northward, however, is slow.

The American Public Health Association holds its next annual meeting in St. Louis, Mo., commencing October 14, and continuing to the 17th, 1884.

THE American Pharmaceutical Association has just closed a well attended and interesting annual meeting in Milwaukee, Wis. The following officers were elected for the ensuing year: President, Henry Conning, of Boston; Vice-Presidents, Lucius Lybrand, Nobleville, Ind.; J. B. Bond, Little Rock, Ark.; Charles A. Heinitsch, Lancaster, Pa.; Secretary, J. W. Colcord, Lynn, Mass.; Treasurer, J. D. Wells, of Cincinnati, Ohio.

DEATHS.—Charles Walter Chamberlain, M.D., of Hartford, Conn., Secretary of the Connecticut State Board of Health, died on the 21st of August, 1884, aged 40 years.

Dr. Grafton Tyler, of Georgetown, one of the oldest and most popular physicians in the District of Columbia, died on the 26th of August, 1884.

THE Medical Association of the Mississippi Valley holds its next anniversary meeting in Springfield, Ill., commencing on Tuesday, Sept. 23, 1884. This organization was formerly known as the Tri-State Medical Society. Let all interested remember that the time of meeting is near at hand.

THE British Association for the Advancement of Science has just closed an apparently profitable and satisfactory annual meeting in Montreal, Canada. Many important papers were read and discussed, and the social arrangements were pleasant and well executed.

SOCIETY PROCEEDINGS.

BOSTON GYNÆCOLOGICAL SOCIETY

REGULAR MARCH MEETING—H. O. MARCY, M.D., PRESIDENT, IN THE CHAIR; HENRY M. FIELD, M.D., SECRETARY.

The report of last meeting having been read and approved, Dr. Field remarked upon the extraordinary contrast presented by eclampsia puerp. in women and in the cow as determined by three statements in Dr. Billing's paper (V. Febr. session); to the effect that (1) associated with the convulsions or their representative in the cow was an exceptionally contractile state of the uterus; that (2) the disease seldom appeared till after the expulsion of the secundines; and (3) that it seldom accompanied first parturitions or later deliveries but was apt to attend the third, fourth, or fifth in contradistinction with the first or second, or with the seventh or eighth. All this is surely quite different from what we are accustomed to observe in the human female.

The committee appointed for the purpose presented resolutions upon the death of Professor Ercolani, of Bologna, an honorary member of the society, which, having been accepted, the Secretary was instructed to have properly written out and forwarded to the family of the deceased.

H. C. White, M.D., presented a communication on the subject of a New Method in the Treatment of Recto-vaginal Fistula.

Patient, a female, was aet. 26 years, and had had two children of, respectively, 26 and 10 mos. Herself one of two children, her mother and brother died early of consumption. When 16 years of age, she was thrown from a horse, leaving a permanent weakness low down in the back, and a tendency to discharge, which was believed to be leucorrhœal. A year later had a small abscess on left vulva, leaving ever after occasional attacks of soreness in that locality. During her first pregnancy, when about 21, had two abscesses in perineal region, which were left to take care of themselves under homœopathic supervision. A second pregnancy followed closely on the first, and soon after its inception patient began to suffer seriously in the perinæal region. Dr. W., having been called in, found a fistula discharging from the left labium, accompanied by a great amount of inflammation. Her condition and suffering prevented a further examination at that time. Discharge continued constantly up, and subsequent to the birth of the child. Babe was weaned at eight months, and two months later an operation was performed, which was done in January last by Dr. Marcy, assisted by Drs. White and Nelson.

The perinæal body was found to be small and contracted by a considerable laceration at childbirth. The opening in the labium was found to communicate with two sinuses in the rectum, 1½ to 2½ inches long, respectively. After the fistulæ had been cut through, completely dissecting the sphincter inside and opening far up into the rectum, the canal of the fistulæ and sinuses was removed, the membrane being carefully dissected out with scissors. The skin was then dissected back from the right side of the perinæum, the mucous membrane of the rectum was carefully brought together at the line of its division, with the over and over stitch—a fine tendon suture being used—and the cut surfaces were brought into apposition and secured by the perinæal pins devised by Dr. M. for operations for laceration of the perinæum. Very slight increase of temperature followed the operation. The pins were removed after eight days, and patient made a good recovery. Wound now (March 10), well healed, sphincter well contracted—has had no trouble in retaining her fæces; has gained in flesh. There are now no symptoms of any fistula.

At the close of Dr. White's communication, Dr. Marcy made brief remarks in farther explanation of the operation and called upon Dr. Pines, present by invitation, for an expression of his opinion; who said, in effect, that the operative procedure, was a new thing in his experience.

Dr. Marcy hereupon read a paper upon *The Relations of Micro-organisms to Surgery*. He first gave a

careful review of the evidence upon which the belief was founded of the deleterious effects of germs upon wounds and, through them, upon the general organism. He stated that much remained unsettled, and that many questions of great importance were still in active discussion. However, it was beyond dispute that sufficient had been determined in a positive manner, so that we may no longer doubt the fundamental basis of truth from which the modern system of wound treatment had been evolved.

The criticisms of abstract theory and practice are no longer pertinent with its objectors, and something more absolute and tangible must be advanced in argument from the other side. Anything may be doubted. There are many who would not accept the demonstration of any historic fact, and every mathematical formulation or axiomatic truth would by some be questioned.

The discussion of what constitutes a poison to wounds was entered upon, and the various exposures detailed to which open wounds are liable. Accepted that a subcutaneous wound, without necrosis of tissue, was the condition most favorable to repair, the comparison therewith of other wounds, in various conditions, was made, and the factors detrimental to repair were analyzed and compared. The most important indication in wound-treatment is to secure an aseptic condition, which may be defined as a wound surgically clean.

The individual, vital force must ever be the first factor in consideration; and this is variously modified by conditions extraneous, such as race, age, idiosyncrasies, mental state, constitutional conditions, disease, surroundings, etc. The bioplastic force, however denominated, is the force to be relied upon in restoring the equilibrium in the injured organism. Good sanitation aids in the recuperation of this power.

All this has long been known by the surgeons of past generations, and more or less effectually they have armed to secure these desiderata. The enunciation of the particulate theory of fermentation was the first step in advance and, upon its demonstration, a great revolution in the treatment of wounds began which has already given most brilliant results, and the farther promise of greater good than any innovation since medicine became an art.

The Greek word σέπτικος signifies that which causes putrefaction, and, per consequence, antiseptic can have but one meaning, viz.: that which is directed against the cause, not the effect, of putrefaction. Granting that putrefaction cannot occur without fermentation and that fermentation is brought about by the growth of the spore-producing plants, it is a simple thing to formulate the role of micro-organisms and to trace to them, as the *causa causans* many of the most deleterious results incident to wounds.

Defects of bioplastic power, both constitutional and local, result in disorders of repair; defects of apposition prolong the process and make extra demands for reparative material; but, in defects of protection, are found the conditions which produce arrest of reproduction and destruction of the adjacent tissues. The disturbing elements, arising from atmospheric contact, come only from the organic, living particles held in suspension.

The forms of germs which produce fermentation may be classified under three general types; viz.: the micrococcus, the bacterium and the yeast-cell. Only the first two are important in their relation to wounds. Both these forms are generally found in open wounds. With micrococci alone, decomposition proceeds without odor. The reproduction of bacilli is accompanied with odor more or less fœtid; bacilli are comparatively easy of destruction. The question of pathogenic germs of greatly varying types is one still *sub judice*.

Experimental proof is constantly accumulating to show that the inflammatory and other changes, which ensue in wounds, are, with few exceptions, the result of the vital activity of new organisms. There is abundant evidence to show the extreme probability, at least, that septicæmia and pyæmia are one and the same disease, and that their sole and invariable cause is due to micrococcus poisoning.

The superficial opinion of many physicians, who are daily engaged in the treatment of wounds in the time-honored manner of their fathers, is to the effect that Listerism and antiseptic surgery consists only in the application of carbolic acid to a wound, in the form of spray or otherwise, while they are still in ignorance of the broad, scientific, fundumental knowledge upon which the modern methods of wound-treatment are based.

Dr. Martin opened the discussion which followed Dr. Marcy's paper. He would first call attention to the fact that the so-called antiseptic agents used in Listerian dressings were not germicidal, and, therefore, can have no effect upon the bacteria which may be present in the wound. He objected to the reasoning that because the results of work in accordance with a theory are better than results formerly obtained, therefore the theory is correct. He thought many physicians still used carbolic acid because they were afraid to oppose the accepted practice.

Dr. Nelson called attention to and explained the elaborate experiments carried out by Dr. Marcy and himself in demonstrating the efficiency of germicides.

Dr. H. C. White said he had been lately treating certain diseases, such as typhoid fever and scarlatina, with sulphurous acid, assuming that they were due to germs, and had been much pleased with results.

Dr. Martin objected that germs existed in the body *de novo*, and that sulphurous acid could have no power to destroy them in the tissues. If a piece of healthy lung tissue was rapidly removed from an animal and at once dropped into boiling oil, so as to form an impervious coating, bacteria would still be found in its interior.

Dr. Marcy, in reply, did not admit that bacteria existed in healthy living tissues. Was not able to explain the existence of bacteria in cysts. Cited the case of rupture of a cyst of size of a walnut into the abdominal cavity, and death in thirty-six hours. The fluid in the peritoneal cavity was found to be swarming with bacteria. Believed that death was due to the rapid multiplication of germs introduced into the system from the cyst. Dermoid cysts are full of bac-

teria, and these, when let loose by opening the cyst, are a source of great danger. This danger lies in the absorption by the newly-cut surface, not by the walls of the cyst. Bacteria are a cause of decomposition, not a result.

Dr. Martin insisted that two things had ruined the profession, viz., theory and reasoning from analogy. Because of observations in two diseases—one of which we produce ourselves, *i. e.*, in charbon and vaccinia —we have jumped to the conclusion that every disease is referable to a germ. In three years more as much will be claimed of cancer as it is already in respect of diabetes. Within fifty years the Listerian theory will be an exploded delusion; this he had been accustomed to say, but since he had seen Prof. Lister himself and his methods, he had reduced the period to twenty-five years.

As he had stated on previous occasions, he had punctured the knee-joint nearly 600 times, with no trouble whatever, and yet he had never used antiseptics. Dr. Mary P. Jacobi had lately written on the fatality of opening a dermoid cyst by aspiration, and this notwithstanding every precaution taken in antisepsis. "I say," continued Dr. M., "if these cysts had been punctured with a clean needle, untouched by caustic fluid, better results would have followed."

Furthermore, carbolic acid, as used, cannot do any harm to the germ. Would ask, In what way do bacteria do harm? Is it by their local presence or their presence in the circulation? Unquestionably, in the latter way; and if this is so, what good can a little rag do, wet in carbolic acid and applied to the wound? What infinite harm will this powerful agent do, if introduced into the general circulation in sufficient quantity and potency to destroy the germs therein disseminated. Take as an example operations upon the rectum. Dr. M. had never in his experience had a fatal case. It is well known that in this region abscesses form which are likely to lead to fistulæ. When first opened they are horribly putrid, but after free discharge has taken place all putridity ceases. He would ask for an explanation of this fact, in accordance with the principles professed by the author of the paper.

Only the other day he had opened a large perinephritic abscess. The smell at first was simply horrible. He threw in hot water in liberal quantities to the evacuated cavity, and in 24 hours all foul odor had left the discharge. The thousands of wounds that have been made by paracentesis of various cavities; the millions of wounds of all kinds made every day — what of these! Why do not they admit the bacilli? They are even more open to them than is the surface of an amputated thigh, because the latter is protected from the first with various wrappings and bandages. Whether we cover with cotton or with carbolized cotton, we shall find that the result is the same.

The Germans and Scotch, beyond all other people, have crowded our literature and art with wild theory, and with results which, while they show great intellect and labor, are too often of but slight practical value. They are great students and investigators. A moment's reflection upon the history of medicine will prove this to be true. Those who have had the great pleasure to meet and converse with Mr., now Sir Joseph, Lister, are well aware that in him the Scotch theatric, metaphysical element is by no means lacking. To his keen, shrewd, untiring observation, perseverance and common sense we owe an immense advance in surgical methods, the redemption of surgical practice in hospitals from the charges which Sir Jas. Y. Simpson brought against it, we all know how justly.

"I make no objection," continued Dr. M., "to the *Listerian method.* What there may be of redundancy, of superfluity, of actual danger to the surgeon as well as patient, in its connection will slowly but surely cure itself. And, indeed, Sir Joseph's practical abandonment of the spray is proof of this." Most that is valuable has come to us through the attempt to vindicate in practice the truth of theory. If the success of the complicated system termed the "Listerian method," is, as Sir Joseph claims it is, proof positive of the truth of the theory, then it is very important that it should be proved, as it most surely has not yet been. If, as I maintain, the success of the Listerian practice is no proof whatever of the truth of the theory of germs and germicides, it is most important it should be known. *Palmam qui meruit ferat!* On Mr. L's instantly evolved theory there was builded a system in one night, as it were.

From Germany and Scotland have come the greatest number of wild theories, and also of solid results of close, intelligent and laborious investigation and study in our art. From the Teutonic race have come the theories of Stahl, of Hahnemann, of Sylvius, of Paracelsus, as well as the admirable researches of Rudolph, of Haller, of Virchow. From Scotland, we have the theories of Cullen, of Brown, and we have, too, the results of the wonderful genius and labor of the two Hunters, of Ferguson, of Brodie, and of a host of others. Those who have had the great favor and benefit of meeting Sir Joseph Lister in person know very well that with all his merit as a practical surgeon, the metaphysical, theoretical element is by no means lacking in his temperament. To that we owe his invention and advocacy of germs and germicides; to his sound, practical Scottish sagacity and common sense we owe the great and invaluable improvement he has made in surgical methods. Whether I am right in this or not, Sir J. Lister certainly evolved the germ theory, as applied to purely surgical disease, in the quiet of his study with Pasteur's book open before him. Like the fully armed Minerva from the brain of Jupiter; like the theory of Hahnemann in his poor garret study with a volume of Cullen's Materia Medica on his desk; like the German students' camel; like Carlyle's Kubla Khan, in waking from a sleep into which he had fallen over *Purdias his Pilgrimage* on his knee; like all such things, this thing was evolved from the inner consciousness of the inventor, and in a night, as it were. Mr. L. has had many bad results, but they were not allowed to appear in his wards.

Dr. M. again alluded to the problem he had recently proposed in respect of the period in which decomposing animal matter is capable of communicating disease, such material being innocuous before

and after; speaking on this subject in some detail, and would again demand, as he had demanded before, how such facts can consist with the Listerian theory. Again, in dissection wounds, the fatal symptoms do not take nine days in which to show themselves, the case is distinctly declared at the end of forty-eight hours. The horribly smelling pus of abscesses formed in recondite parts of the body, with which all are familiar—what has the germ theory and Listerism to do with this? It is said that it is the germ in the interior of the body that does the harm, and this I know, continued Dr. M.—but to reach and destroy the bacteria in the interior of the body it will take a dose of the latest fashionable disinfectant, corros. sublimate, that will kill the patient too.

Lister began by excluding drainage, but now he is the most exact and rigid man, in respect of drainage, that lives; just here he shows that he is an admirable surgeon. Here, as also in winding a strangulating bandage about the stump, he has done a great deal of good. He has reformed the entire system of surgery, as said before, but not one iota of credit belongs to his germs or to the theories he has built upon them!

Dr. Pines, upon call, thanked the Chair for invitation to be present at the hearing of a subject of so great interest as that presented both by the paper of the day and by Dr. Martin's remarks upon the same. Dr. M. had shown himself pervaded by that philosophic scepticism which the Germans say lies at the foundation of all science. In his own practice of forty years, he had learned to be sceptical both in the use of new remedies and as respects adherence to new methods. Could well remember he was accustomed to observe, full thirty years ago, that wounds that were cared for in a cleanly way were pretty sure to do well. We did not hear of septicæmia then as now, and it may well be that this comparatively new condition has become a bug-bear with the profession for which we are disposed to seek out new remedies. It used to be the general opinion that the best method with abscesses was to open freely to the air, letting nature have her way outward, and I do not remember that, thus doing, we used to have serious trouble from germ poisoning.

Dr. P. continued to the effect that when Listerism was first brought forward he recognized the fact that it would at least secure a superior degree of cleanliness in wound-treatment; and he had seen that those who follow this method are steadily diminishing the amount of carbolic acid they use, until its strength in their washings and lotions begins to approach homœopathic potency. In one word, we have been brought to the perfection of surgical cleanliness.

Dr. Martin recalled the vast number of men, during the late war, brought into division hospitals with various wounds, already suppurating and pullulating with maggots; but these subjects did remarkably well, certainly before they were put into the hospital and sometimes afterward. Perhaps the maggots served as germicides,—assuredly the soldier had no other protection against the germs about which we hear so much to-day.

Upon call for pathological specimens, Vice-President Norris took the chair, and Dr. Marcy exhibited a multilocular ovarian cyst which he had removed four days previously. Patient æt. 52 years. Menses ceased six years before. Had noticed a lump in left side seven years before, but it had not been troublesome till about six months ago. Since then had suffered much pain, but general health was good. Considerable amount of ascitic fluid. Cyst, 9 lbs. in weight, was everywhere adherent, to parietes, to omentum, and in some places to the intestine.

Several of the cysts were ruptured in the removal. Pedicle secured by tendinous suture, shoemaker's stitch, and the divided peritonæum approximated over the stump by continuous suture, and returned to place. Other ovary cystic, tube enlarged,—both removed. Shock severe and prolonged, although the rectal temperature; when put to bed, was 99. Temperature before operation normal. Rallied slowly, no pain or nausea. After 48 hours albumen and casts, granular and hyaline, apparent in urine, which was of low specific gravity and scanty. Death occurred on the third day, after almost entire suppression of urine.

Autopsy.—No hæmorrhage, no general peritonitis; ¾ oz. red serum in Douglass' fossa, swarming with active micrococci and bacilli. Kidneys pale, flabby, capsule adherent in places; in tubules were found both micrococci and bacilli. Cause of death, septic nephritis. The operation was done under careful aseptic precautions, but in the unopened smaller cysts were found active organisms similar to those in the kidney and retro-uterine fossa.

Dr. Marcy also gave the history of a case where death had occurred about forty-eight hours after the spontaneous rupture of an ovarian cyst not larger than a large walnut. In the thick molasses-colored fluid of the cyst there were very large and numerous bacilli, which was the presumed cause of the septic peritonitis. The doctor had not found any allusion to the existence of micro-organisms in cysts of the ovary, but believed they were commonly present in dermoid cysts; was unable to explain their origin.

Dr. M. also exhibited the ovaries and tubes removed from a patient the day before. Widow, over 40, never pregnant, well until four years ago. Since then, severe pain in the pelvis had been a constant factor, with occasional menorrhagia, so pronounced as often to demand the tampon. Patient was sent to him by Dr. A. Young, of Prescott, Wis., with statement in letter introducing her that he had never seen a more pitiable sufferer. Diagnosis, disease of the ovaries and tubes with a small fibroid tumor.

Operation, without complication, confirmed the diagnosis. Sub-peritoneal, pediculated myoma of size of English walnut; refrained from its removal. Tubes much enlarged and convoluted. Slight cystic degeneration of ovaries, with adhesion of right ovary. (Under date of March 20, Dr. M. reports convalescence without complication.)

Dr. M. also exhibited the cotyledons from a cow, which he had removed, having been detained over night at the house of a farmer when at a consultation visit in the country recently. Cow, 15 years old, had been delivered of a dead calf four days before; hæmorrhage so severe as to threaten death, animal very weak. Had removed with much difficulty a

placenta composed of 30 to 40 cotyledons, each firmly adherent. Decomposition had already set in and the entire mass about half filled a pail.

Dr. Warner suggested that the fibroid, in one of Dr. Marcy's cases, might have been the cause of the hæmorrhage. Reply: This could hardly have been, as the fibroid was attached externally. Still, persisted Dr. W., the pedicle would be likely to penetrate to the mucous membrane of the cavity and so set up an excitation leading to hæmorrhage. Dr. M. replied that his studies, so far as he had pursued them, would hardly warrant any such conclusion.

Dr. Wheeler asked what killed the patient in the second case reported. Dr. Marcy replied that, in his belief, it was septicæmia. Dr. Martin asked if the urine had been examined prior to the operation. Reply: It had. Dr. Nelson had examined the specimen microscopically and found it full of micrococci.

Dr. Wheeler remarked: It was formerly believed septicæmia did not appear at so early a date, but he thought this view was now abandoned, and Dr. Marcy's experience in the case reported, gives confirmation in this direction. He had himself had similar experience.

Society adjourned.

INTERNATIONAL MEDICAL CONGRESS.—ABSTRACT OF A PAPER ON NOVEL MEANS AND METHODS IN THE TREATMENT OF DISEASES OF THE SKIN.

BY JOHN V. SHOEMAKER, A.M. M.D.

Lecturer on Dermatology at the Jefferson Medical College, and Instructor thereon in the Postgraduate course of that Institution. Physician to the Philadelphia Hospital for Skin Diseases, etc.

[Read before the Section of Dermatology of the International Medical Congress at Copenhagen, Denmark, Aug. 12, 1884.]

After dwelling on the old routine treatment of skin diseases, the writer enumerates the changes and practical results attained by modern remedies enumerating Naphthol, Pyrogallic acid and Chrysarobin instead of the tar treatment of old; the oleates with their penetrating power as solutions to enter the glands and follicles in contrast to the older remedies which as suspensions only reached no further than the epidermal layer. He states that favus without epilation may be now cured by mercuric oleate, or copper oleate; that Trychophytosis is readily subdued by similar means, and that chromophytosis is readily cured by the latter. Arsenic and mercury are now better administered subcutaneously than formerly per orem, and that the latter had almost superseded the old inunction treatment.

He enters principally into an account of those novel means and methods which he had himself developed and been able to observe and study.

After entering into a special review of the oleates he called attention, based upon physiological experiments, to the fact that they produce little if any constitutional effect, that they do not enter into the blood and are not found in the excretions, but claims for them a better contact action than by the ointments of old, from the fact that by their solubility in fatty vehicles they are capable of entering the glands and follicles, and cites their use in the different affections, calling attention to many new ones not heretofore in use, such as mercurous, nickel and tin oleates. As a novel remedy developed by him, he refers to chlorinated oil, which, devoid of odor or irritant properties, he has formed a most serviceable remedy in scabies.

The oil of Ergot first recommended by him, he quotes as a most effectual remedy in seborrhœa of the scalp and other hairy parts of the body, for which it is far preferable to other fats and oils. In seborrhoea of the genitals he found it especially serviceable and recommends it as a hair oil for cases of idiopathic loss of hair resulting from lack of tone of the follicle. He also refers to the use of soap bark as a substitute for soap, especially as detergent for the scalp and its tincture as a mild substitute for the spiritus saponis kalinus.

In scrofuloderma he had found the hypodermatic use of Cod Liver Oil as more reliable than the internal use of it, which is often either omitted by the patient, or, if taken, not assimilated.

In reviewing the Beta Naphthol he speaks of it with much praise, and after citing interesting experiments to test the toxic effect claimed for it, he finds that if properly prepared, freed from its volatile odorous principles, it is certainly devoid of any such property, while it undoubtedly proves the most effective remedy in scabies and one of the best in psoriasis, taking the place of the unsightly and unpleasant tar, and mentions its favorable action in eczema, etc.

The accounts of his use in diseases of the skin of the infusion of the jequirity forms one of the most important points of the paper. Deducing from its use in granulating lids that it might have a similar action on granulating conditions of the skin, he had applied it to cases of specific scrofulous and epithelial ulcers and obstinate ulcers generally, and from an experience with it in a year was so gratified with the results that he recommends and endorses the use thereof in all such conditions. He employed a 25 pr. c. infusion, which was made by macerating the decortiscated cotyledons and rubbing them up, allowing the pulp to remain therein.

Describing the manner in which the specific jequirity inflammation develops itself, he cites various cases in which, after other means had failed, this infusion alone had been able to effect cures. While calling attention to the fact that it may at times produce unpleasant symptoms, he states that he had at no time seen serious consequences follow its use.

Speaking of mechanical remedies, the writer describes them in a general way, and enumerates them as, 1st, massage; 2d, compression; 3d, blood-letting; 4th, incision; 5th, excision; 6th, enucleation; 7th, scooping; 8th, scraping; 9th, the seton, and 10th, cauterization. While not claiming them as new in their manner and character, he refers to them as being neglected by the practitioner, though of great use and value. Massage he recommends both for its constitutional and local effect. The former to insure

passive motion when it cannot be performed actively, as well as by promoting oxidation so necessary in psoriasis, as well as in other affections when it is necessary to carry off effete products, and also in neuralgia, perverted sensibility and trophic disturbances of the skin. He also recommends it in chronic and sub-acute forms of eczema to remove deposits and infiltrations. In seborrhœa he also finds it useful as well as in indurated acne glandular swelling, and in excessive and deficient pigmentation of the skin. Compression he refers to as indicated when support is wanting by means of any substance giving rest to the affected parts. He recommends it in eczema, especially when involving the abdomen, nates and genitals. It thus prevents friction, relieves congestions and he claims it as a useful adjuvant in certain eruptive fevers, the œdema after erysipelas, eczema, furuncular and glandular affections, herpes, herpes zoster and urticaria. Blood-letting he considers as efficacious both for local and general effect. As an antiphlogistic it is of great value, especially in chronic eczema, to assist the action of constitutional remedies. Topical blood-letting by either puncturing, scarification and leeching, is of the greatest importance to relieve the engorged cutaneous vessels in the various inflammations of the skin. Venesection as constitutional means, proves most valuable in certain cutaneous eruptions occurring in plethoric subjects. Incision made for the purpose of exposing, dividing and removing the parts is at times of great importance to relieve tension of the integument, divide sensitive nerves and give vent to pent up inflammatory products, and is useful in sycosis, rosacea, erysipelas, boils and carbuncles. Excision for the removal of morbid parts, both by knife, ligature or crushing, is spoken of as often of absolute necessity, while enucleation to remove diseased structures after incision into skin and capsules would come under the same heading. Scooping, scraping and cauterization are treated by the author in a like manner for the purpose of destructive action on diseased and neoplastic developments, particularly the latter, either through heated mediums or the lens and solar rays, are recommended for that purpose.

The writer in closing, points out that the means and methods referred to have been of great use to him, and if confirmed by others they would certainly form an important addition to our knowledge of the therapeutics of dermatology.

Pasteur's experiments with the virus of rabies have been investigated by a committee appointed to inquire into the reality of the protection afforded against hydrophobia. This committee has entirely verified his conclusions. Of 23 dogs which were submitted as protected all have been found proof against inoculation with the virus of rabies, whilst of eight unprotected dogs on which intra-venous inoculation was performed, and five unprotected ones which underwent trepanning and inoculation, all became mad.

STATE MEDICINE.

STATE BOARD OF HEALTH SANITARY REPORTS OF CONNECTICUT.

BY DR. C. W. CHAMBERLAIN, SECRETARY.

MORTALITY IN JUNE, 1884.

	HARTFORD.	NEW HAVEN.	MERIDEN.	WATERBURY.	NEW BRITAIN.	BRIDGEPORT.	NORWICH.	NEW LONDON.	MIDDLETOWN.
Total deaths	69	106	22	30	25	49	35	13	13
Monthly death-rate	16	16	12	15	18	16	16	12	9
Zymotics	16	18	5	6	8	..	5	2	..
Infantile	17	39	6	2	10	23	14	6	..
Nervous diseases	9	23	7	3	4	..	4	..	3
Heart diseases	5	10	1	1	..	2	3	1	1
Scarlet fever	3	4	..	..	2	1	..	1	..
Typhoid fever	...	2	..	..	..	..	..	..	..
Typho-malarial fever	1	1	..	..	1	..	..	..	..
Malarial fever	..	..	..	..	..	..	..	..	..
Diphtheria and croup	8	2	..	..	4	1	1	..	1
Whooping-cough	..	..	..	1	..	..	..	..	..
Cholera infantum	3	6	2	1	1	5	..	..	..
Diarrhœal diseases, adult	..	2	1	..	..	..	1	..	..
Cerebro-spinal meningitis	..	..	2	1	..	..	1	..	..
Consumption	7	17	1	7	6	8	3	3	2
Pneu'ia and congs'n lung	5	6	..	1	..	6	1	1	..
Bronchitis	1	1	..	..	..	..	..	..	..
Old age	3	2	2	..	..	..	..	..	..
Railroad accidents	1	..	..	..	..	..	..	..	..
Accident and violence	4	3	2	1	..	2	..	1	1
In public institutions	6	11	..	..	..	..	..	..	6

June is usually one of the healthiest months in the year when there are comparatively few deaths from zymotic diseases, for the reason probably that the people are so much more out of doors. Then the changeable spring weather that has played such sad havoc among the consumptives and the weakly generally, and has been so unfavorable to all kinds of diseases of the air passages and respiratory system, has given place to a warmer temperature and less fickle changes. This year, however, while the prevalence of lung fever and fatal fevers have been less than has been the rule for the past few years, the lighter fevers and especially influenza have been more than ordinarily common. Thus from Willington almost an epidemic of influenza is reported and many cases of throat trouble, and to a less degree the same, especially the catarrhal and throat troubles is true generally. Whooping cough has been very prevalent, Hartford, Norwalk, Stafford Springs, New Hartford, Willimantic, Waterbury, and in a portion of Ridgefield, which indicates its diffusion. Scarlet fever ranks next. After a marked decline and total disappearance in many places it has reappeared in considerable virulence. The table shows its mortality in the cities. Two deaths are reported from Willimantic; seven cases, three fatal are also reported from South Manchester; cases usually severe are reported from several towns in the southwestern part of the State. The indications are that the disease is spreading and is rather increasing.

Diphtheria is less prevalent than in the spring but shows a slight increase over last month. It still lin-

gers in Hartford. The deaths, eight in number, are just double the total mortality in Bridgeport in 1833 from diphtheria, although that city before the efficient sanitary work done of late, used to report 75 or more deaths for a series of years. Four deaths are reported from Willimantic, and cases usually of a not very malignant type are reported from eight towns. The prevalence of these diseases is unusual for June, unless an epidemic exists. In most of the cases filth conditions are easily traceable. The overflow of filth from the soil pipe on the lower floor of a three-story tenement house, and a broken earthenware outlet pipe from the house to the sewer were associated with five deaths, and sink drainage percolating through a cellar wall, with two others; faulty plumbing with the greater part of those in the cities.

Each month that reports are made of causes affords more or less clear instances of the relation between filth and diphtheria. So constantly has this been noted that the Massachusetts State Board of Health in a recent circular affirm that diphtheria can be caused by filth directly without any connection with a preceding case.

Diarrhœal diseases have not been as prevalent as was indicated by their early appearance. Several cases of sudden death, both in children and adults, have been reported, death ensuing 24 and 36 hours after seizure. A few cases of dysentery have been reported, but only in one locality.

Malarial diseases are reported as increasing in the southwestern part of the State and along the valley of the Connecticut. Fevers, intermittent and remittent, are reported from Tariffville, while the month is declared to have been the healthiest of the last twelve, with little other sickness. A similar report is made from Oxford, that is, no sickness except an increase in malarial disease. Typho-malarial fever is also reported in several cases.

In general, the history of the month has not been as unfavorable to health as the average, while more so than is the case usually in June. Cheshire reports one death only, Granby but three, one from old age. Haddam is reported unusually healthy, and whooping-cough and measles as the only diseases prevalent in Stafford Springs. Ridgefield is pronounced unusually free from disease, and the same, with the exception of malarial diseases, could be said of several places.

Nervous diseases have been unusually prominent for June. Thus, New Haven reports 23 deaths, 16 from convulsions, and in many towns cases of meningitis and cerebro-spinal meningitis are reported. These are all in the part of the State where malaria has long been prevalent. That there is some causal relation in case of cerebro-spinal meningitis is more than probable. The relation to nervous diseases in general is certainly quite constant.

A fatal case of sunstroke is reported from Waterbury; one not fatal from Somers, while instances of persons overcome by the heat or partial sunstroke were oftener mentioned. The table indicates an unusual number of accidental deaths. To these must be added two from South Manchester, one from drowning, one from a broken back.

FOREIGN CORRESPONDENCE.

LONDON, August.

At the distribution of prizes and certificates to the students of St. Thomas's Hospital, the Archbishop of Canterbury, in acknowledging a vote of thanks, said that he felt great pleasure in the bond of union which existed between Lambeth Palace and St. Thomas's Hospital, and the use which the students were able to make of the Palace fields for their foot-ball, cricket and other sports. He was delighted to see how far-reaching the hospital was. It was not simply an institution, but a great nest of institutions. The human organism was one of God's greatest works, and the study of forces and influences must be to them, if they saw below the surface, a great revelation of the name of God. He had read the other day what the character of a good physician and a good surgeon ought to be, and the qualities which he should possess were courage and presence of mind, deep sympathy, perfect candor, simple manners, clear faculties, and pure moral feeling, and if over all there was shed the light of God they would have in the man who possessed them one who was qualified alike to work and to teach. Mr. Labouchere, in his journal, *Truth*, commenting upon the Archbishop's speech, hopes that if he is ever taken suddenly ill his friends will not trouble to find such a man, but trusts they will bring the nearest practitioner, for fear he should die before the good physician could be summoned to his help. A Japanese gentleman was successful in taking a prize and scholarship, and received quite an ovation upon appearing upon the platform.

The fact that the physicians and surgeons on the staff of some of the leading metropolitan hospitals are unrepresented on the board of management, is continually leading to differences between the two bodies. At the Northwest London Hospital these differences have just culminated in the resignation of the whole medical staff, the reason alleged being the dismissal of one of the members by the Committee without sufficient explanation. It is satisfactory to learn, however, that the patients will not suffer by this sudden step, as each physician and surgeon has undertaken to continue his attendance on the cases at present under his care until they are well enough to be discharged. In the meantime it is just possible the dispute may be amicably arranged, an endeavor obviously to be desired.

With the special sanction of Her Majesty, the new building now being erected for the National Hospital for the Paralyzed and Epileptic, Queen street, is to be dedicated as a memorial to his Royal Highness, the late Duke of Albany. A meeting to receive a communication from the Queen on this subject has been held, the Earl of Shaftesbury in the chair. Of the cost of the memorial building, a balance of £12,500 remains to be obtained.

Mr. Edward Crookshank, who at the present time is Director of Convict Prisons in Egypt, has brought out a very useful antiseptic first dressing companion, for the use of soldiers in the field. A tin box, adapted to be worn in a pocket of the tunic, contains

a collapsible tube, to contain a cream of iodoform and eucalyptus oil, a skip of protective carbolized tow, and a carbolized gauze bandage; the whole weighs 6½ ounces. Mr. Crookshank is, however, strongly in favor of salicylic silk or iodoform tow, as forming much more powerful antiseptic pads.

Dr. George Alfred Walker, known so well as "Graveyard" Walker, who died last week at his residence in North Wales, after a brief illness, was born at Nottingham in 1807. He became a licentiate of the Society of Apothecaries in 1829, and a member of the College of Surgeons in 1831. He studied for a long time at St. Bartholomew's Hospital, completing his professional education in Paris. Early in life he was deeply impressed by the terrible upturnings of human remains in graveyards, which he had seen in various parts of the country. For many years he resolutely waged a crusade against intra-mural interments, which ultimately brought about the passing of the law forbidding burials in church vaults, and which led to the construction of public cemeteries. In 1847 he gained possession of the notorious Enon Chapel, in London, from which he exhumed several thousand human bodies in various stages of decay, and had them entombed in a monster grave in Norwood Cemetery, at his own expense. He was the author of several works on sanitary reform and the graveyard question, and wrote a number of treatises on the skin, ulcers, gout, rheumatism, sciatica, and indigestion, which laid the foundation of a new era in the treatment of disease.

An excellent suggestion has been made with regard to the question of quarantine imposed upon vessels coming from infected ports. At present the same time is put upon all vessels alike. It is obvious that a steamer that has made a journey in three days is more dangerous than a sailing ship that left a fortnight previously. It is proposed that the length of quarantine should depend upon the date at which the vessel left an infected port.

The state of the River Thames below London is this summer in a very bad condition from a sanitary point. It is said to be due to the dry season, and also to the abstraction of great quantities of water above London by the various water companies.

An inquest was recently held upon the body of a man who having fallen from a barge, was stated by the medical witnesses to have died poisoned through swallowing a small quantity of the water. The authorities are now daily throwing upwards of a hundred tons of chloride of lime into the river at a cost of about nine pounds per ton.

Those who are interested in old, amusing records and anecdotes of the profession will find some interesting reading for leisure hours in "Mems., Maxims and Memoirs," by William Wadd, Esquire, L.T.R.S., Surgeon Extraordinary to the King, 1827.

The Medical Congress at Copenhagen is attended by more than 1,100 medical men from almost every country in the world. There were 110 from Great Britain present on the opening day, of whom 35 intend to deliver addresses. M. Pasteur has delivered an interesting address on morbific micro-organisms and vaccination. He described and explained his late experiments of inoculation, and stated that no inoculated dog had yet died.

Sir Erasmus Wilson is dead. Of late years he has given a great part of his fortune away in charity. It was due to him that the Egyptian obelisk known as Cleopatra's Needle, which now stands on the Thames embankment, was brought to England. He founded the Chair of Dermatology in the College of Surgeons in 1869, and was elected the first professor. He published many works on diseases of the skin.

G. O. M.

COPENHAGEN, DENMARK,
August 18, 1884.

MR. EDITOR:—The eighth session of the International Medical Congress has held its meeting in Copenhagen, and the Congress has adjourned to meet again in Washington in 1887, the invitation of the American Association, tendered by Dr. John S. Billings, having been accepted. This meeting has been very successful in every way, being largely attended, especially by men from the Continent and the British Isles, together with a considerable delegation from America. Although no full directory has yet been published, it is probable that there are about 1,500 members present, and the city is crowded with them.

The exercises commenced Sunday, August 10, with an address by President Panum, in the presence of His Majesty, the King of Denmark, and in the evening with a dinner given by the President and the Executive Committee. They have continued through the week, closing Saturday, August 16. Each day, with the exception of Wednesday, the 13th, there have been two sessions of the Sections—the morning session being from 8 to 12 o'clock, and the afternoon session from 1 to 3 P. M.; and also there has been a general meeting from 3:30 to 5 P. M., at which addresses were given by Pasteur, of Paris; Crudeli, of Rome; Gull, of London; Virchow, of Berlin; and Panum, of Copenhagen. The Congress has been divided for work into fourteen sections, as follows: I, Anatomy; II, Physiology; III, Pathology; IV, Medicine; V, Surgery; VI, Obstetrics and Gynæcology; VII, Ophthalmology; VIII, Pedriatria; IX, Dermatology and Syphilis; X, Nervous Diseases; XI, Laryngology; XII, Otology; XIII, State Medicine; and XIV, Military Medicine.

The officinal languages have been English, French, and German, and all of the exercises have been conducted in these languages, French being the most universal. It has frequently happened that a paper has been read perhaps in French, with the discussion opened in English, and continued in German.

The social element was not overlooked, and the whole city has been thrown open to its guests. Each day there has been some reception or dinner, chief among which were the dinner given by the city of Copenhagen on Thursday evening, and the reception and supper by the King and Queen on Friday evening.

Wednesday there were no sessions, and the members and their ladies were conveyed by fine steamers about twenty miles to Elsineur, where a fine lunch

was waiting their arrival in the old castle of Kronborg. In the evening they returned to Copenhagen by rail.

Although the chief business of a medical meeting is the dissemination and interchange of knowledge of a medical character, yet not the least benefit is the social element, the members learning to know each other personally, and ever after they appreciate each other better than if there is no acquaintance and they are known only at a distance. On this account I trust that the meeting in America in 1887 may be largely attended by the many distinguished men on this side of the Atlantic. N.

DOMESTIC CORRESPONDENCE.

TREATMENT OF CHOLERA.

BALTIMORE, Aug. 29, 1884.

DEAR DOCTOR:—While thanking you for publishing my note on Asiatic Cholera and the trouble you have taken to criticise it, I cannot refrain from drawing attention to certain facts that from haste seem to have been misunderstood. In the first place you say that "all these suggestions are founded on the assumption that the chief danger from cholera is in the loss of the water and salts of the blood, leaving that fluid too viscid to circulate." Now I wish it to be distinctly understood that I made *directly* no such assertion, but admit of course the importance of supplying liquid to help circulation, and think there are other circumstances that I am about to specify that are equally or more important. Prominent among these is a poisonous condition, leading to collapse in the last stages of cholera, typhus, yellow fever and Bright's disease, known under the name of uræmia. The substance *urea*, believed to cause this, is said to be found by chemical analysis in the serous discharges, vomit and tissues, and this it is, undecomposed, and as carbonate of ammonia, that helps to supply the food to *comma-bacteria*, or other low forms of vegetable life in the intestines, and as carbonate of ammonia, in company with carbonate of soda, gives the alkaline fluid, that I desire at first to dilute, and then get rid of at the expense of liquid injected into the peritonæum, bowels and areolar tissue rather than at that of the whole body. Another object I had in view but which I did not specify, and for which I intended to use the fountain apparatus *only in* the *areolar tissue* and *bowels* for fear of danger, was to decompose the *urea* in yellow fever, Bright's disease, cholera, severe typhus, etc., by injections of dilute liq., sodæ chlorinatæ, changing it into carbonic acid and nitrogen. A glance at the effect here produced shows how untenable the notion is that fluids injected into the peritonæum and areolar tissue will act the same as if injected directly into the blood-vessels, for if we should be foolish enough to do the latter, patients would probably perish from *nitrogen*, like air in the heart, and we all know, who have worked with the microscope, how water makes the red blood discs disappear, and acts on the zoöids and æcoids, which probably accounts for its want of permanent good effect. Specific gravity, therefore, is an important consideration when fluids are to be thrown into the peritonæum, and it is to *this*, forced by your editorial, that I would draw *particular attention* and suggest that the liquid coming from the bowels and stomach, be tested by hydrometer at the bedside, and then an artificial fluid identical or slightly exceeding it in specific gravity if possible, be employed in the peritonæum to reverse the osmosis that you speak of, or prevent, by the liquids being of the same strength on both sides of the intestine, any current, either endosmotic or exosmotic.

As to the fountain which you think requires almost the stillness of death for successful application, I would simply say that I do not prefer it when it can be dispensed with, but think that a little patience on the part of the physician will enable him to adjust it by the long, soft, flexible, thin India rubber tubes in such a way, by rubber bandages, adhesive plaster or other substances placed around the limbs, as to make both fountain and tubes almost a part of the body, and allow the patient with the reservoir hanging around his neck, attached to the shoulders, on the upper part of the body, on pulleys slightly above the bed, or otherwise, as much movement as he desires. A simpler plan to get liquid into the tissues continuously, provided the patient were strong enough to bear it, would be to insert the hypodermic syringes without pistons or rubber tubes into the areolar tissue, and tie or bandage them in place, and then put the patient in a bath-tub filled with the artificial serum, using the tub as a reservoir. Finally (if all these suggestions should prove futile), my object was to gain time, so as to enable one to employ some more potent remedy, such as a gas or liquid in which low vegetable forms could not live, applied through the rectum or otherwise, putting the patient perhaps into a bath-tub full of dilute acid liquid sufficient to cover the body with the exception of the head, the rectum being kept open by a short tube, so as to continuously dilute by water pressure and act upon the walls and contents of the bowels, instead of using a syringe. Other germs or their excrements might also be used by the stomach and bowels to starve out the cause of the disease, as suggested in my article on Paraldehyde, and a desperate case that recovered after the use of weisbier, consisting largely of yeast, carbonic acid froth, and yeast plants in active fermentation, gives strength to the argument. You now see why I wrote so briefly in my former communication on this subject, for when we enter upon the treatment of cholera the road is rough, causing many bruises, and widens to such an extent as to become the despair of the traveler.

Very respectfully, your obedient servant,

J. R. UHLER, M.D.,
234 W. Fayette street.

SPINA BIFIDA.

On the 22d of April, 1884, I delivered Mrs. C. of a female child weighing 10½ lbs. The child was well-formed, symmetrical and very well nourished. At about the third dorsal vertebra a spina bifida pre-

sented itself about the size of a pullet's egg. The tumor was pear-shaped, and with a pedicle about an inch in diameter. The fundus was somewhat corrugated and purple. It appeared to contain a small quantity of fluid. There was a distinct opening in the vertebra at the attachment of the tumor, corresponding in size to an ordinary lead pencil. The child was very fretful and cried constantly and piteously when laid upon its back. It was much more comfortable when held upright than when in any other position. Any manipulation of the tumor caused the child to cry. When it was three weeks old I made a critical examination which thoroughly satisfied me that it was a spina bifida, that it communicated with the cord, and that it was increasing in size. I constricted the pedicle with a clamp to determine whether convulsions would occur. They did, but very moderate in degree. But this caused so much suffering to the baby that further interference was postponed until two days after, when it was decided to amputate it.

In the meantime the child worried and cried most all the time, and there were slight twitchings of all the extremities, but nothing occurred which amounted to a convulsion.

I transfixed the pedicle with a stout silk cord, tied it very tightly in two lateral halves, and cut it off. A small quantity of fluid (to all appearances spinal) escaped. The tumor collapsed, and on examination showed a serous lining. The child seemed easier as soon as it was removed; and though there was a good deal of disturbance in the nervous system, and a good deal of twitching of muscles all over the body for several days, there was nothing which amounted to a convulsion, and the child could now lie on its back and sleep. It was dressed antiseptically. On the fourth day the skin had given way under the ligature, which now contained only the "roots," if the expression is allowable, of the tumor. In four more days these came away, leaving only a healthy granulating surface, which in a few more days completely healed, leaving a cicatrix exactly like an ordinary umbilicus. The child is now (August 22) as strong and healthy as one could wish to see. A perfect cure had resulted in nine days.

To illustrate the wonderful power of nature to heal wounds, I may add that when this child was born, the mother's vulva was torn and lacerated beyond all recognition. The laceration extending down to the sphincter ani—down both sides of it, and up both sides through the labii. It looked as if the opening had been made by the explosion of a charge of powder. It was literally torn in shreds, one end of the sphincter vagina muscles protruded ¾ of an inch and could only with difficulty be replaced in position. Indeed, so extensive was the laceration that I deemed it unwise to sew it up lest I should get occlusion of the vagina. This state of affairs was brought about by the head *bursting* through a *perfectly unyielding* perinæum by a tremendous contraction of the uterus, and this notwithstanding I had my hand upon the head holding it back in order to avert such a calamity.

The parts were carefully cleansed and the woman placed upon her side with orders to remain so until next day. When I examined her 24 hours after, I found the parts had so nearly approximated themselves as to leave very little, if any deformity, and as Dame Nature had made such a skilful beginning, I decided to leave the whole work to her, just to see what she was capable of doing. The result, the lady assures me, is perfect, a perfect recovery taking place in 10 days, and that she now "feels splendidly, better than she ever did before in her life," and certainly her looks and actions would confirm the statement.

F. W. Epley.

New Richmond, Wis., Aug. 22, 1884.

TÆNIA IN INFANCY.

Dubuque, Iowa, August 29, 1884.

Editor of Journal of American Medical Association:

In your paper of the 23rd inst., Dr. J. R. Wilkins reports a case of tænia in a child 2½ years old. In my notes of Prof. Monti's lectures, held at the Vienna Poliklinik in the winter of 1878-79, I find mention of a case, said to have occurred in this country, where the infant was only 4 weeks old. To explain the occurrence of tænia at such an early age, it was supposed that the fœtus had swallowed a cysticercus floating in the liquor amnii.

Respectfully,

G. Minges, M.D.

NECROLOGY.

We take pleasure in adding to the full biographical sketch of Dr. Woodward, given in our last number from the pen of Dr. Toner, the following just tribute received from the Surgeon-General's office.—Ed.

War Department,
Surgeon-General's Office,
Washington, D. C., August 20, 1884.

In announcing to the Officers of the Medical Department the death of Joseph Janvier Woodward, Surgeon and Brevet Lieutenant Colonel, U. S. Army, which occurred near Philadelphia, Pa., August 17, 1884, the Surgeon-General wishes to offer his tribute of respect to the memory of the deceased, whose distinguished career and valuable services, for a period of twenty-three years, have shed lustre on the Corps, and for whose untimely loss feelings of profound regret will be shared alike by his comrades in arms and by the profession at large.

Doctor Woodward was born in Philadelphia, Pa., October 30, 1833, and was educated at the Central High School of that city, graduating with honor as Bachelor of Arts in 1850, and receiving the degree of Master of Arts from the same institution in 1855.

He graduated in medicine at the University of Pennsylvania, April, 1853; entered the Army as Assistant Surgeon, August 5, 1861; became Captain and Assistant Surgeon, July 28, 1866; Major and Surgeon, June 26, 1876. "For faithful and meritorious services during the war" he received the brevets of Captain, Major, and Lieutenant Colonel U. S. Army.

He was assigned to duty in this office May 19, 1862, and from that date until the beginning of the illness which terminated in his death was intimately identified with its professional and scientific work.

While the valuable results of his life's labor are comprehended in a long list of miscellaneous publications, both professional and scientific, too familiar to the Corps to require individual mention, his greatest triumphs were won in the field of microscopical investigation in normal and pathological histology, and in his happy application of photomicrography to the purposes of science. In these pursuits he attained remarkable success, and achieved an enviable, world-wide reputation, leaving to science and medicine lessons of undoubted value and usefulness. Of his strictly professional work, the medical portion of the Medical and Surgical History of the War of the Rebellion was the crowning achievement. In the second part of this work he developed the results of his careful investigations into the nature and pathology of the intestinal diseases which had proved so fatal in the late war. Here, also, he displayed his wonderful capacity for that minute and exhaustive research which forms so striking a feature of his writings.

As in the case of his co-laborer, Otis, he yields to other hands the honor of completing his labors.

In addition to his engrossing professional duties, his restless activity of mind led him to seek recreation in his favorite studies—physics, art and philosophy.

Endowed with a retentive memory and of untiring industry, he acquired a vast store of information which he held available for use at will; fluent of speech, he took delight in the expression of his views and opinions, both in social converse and in the arena of scientific debate.

His fund of knowledge, his strong convictions, his tenacity of opinion and his quick perception, made him a controversialist of no low order.

With such a record, it is needless to speak of his zeal, his ambition or his devotion to his profession, and especially to the reputation of the corps of which he was so bright an ornament.

Of a sensitive, highly strung, nervous organization, the confinement, anxiety and labor to which he was subjected in his attendance upon the late President Garfield during his long illness, proved too much for a mind and body already overstrained by incessant labor, and precipitated the illness which finally terminated his life.

At the time of his death, Dr. Woodward was a member and ex-President of the American Medical Association, a member and ex-President of the Washington Philosophical Society, a member of the National Academy of Science, of the Association for the Advancement of Science, of the Academy of Natural Sciences of Philadelphia, and of the College of Physicians and Surgeons of Philadelphia. He was an honorary member of several American and foreign scientific, medical and microscopical societies, and the recipient of many distinguished honors from learned bodies in this country and abroad.

R. MURRAY,
Surgeon-General, U. S. Army.

MISCELLANEOUS.

ENCYCLOPÆDIA OF MEDICAL WIT, HUMOR AND CURIOSITIES OF MEDICINE.

The undersigned proposes to publish, during the coming year, a large volume under the above or a similar title.

In this undertaking he respectfully solicits the kindly aid of the profession. Witticisms, and anecdotes of a humorous, or curious nature are solicited. There are numberless unpublished experiences that would prove a source of amusement and instruction, and all physicians, druggists, dentists, and others supplying original contributions will receive due credit in the work.

Information regarding suitable literature—home and foreign, ancient and modern—will be gladly received, and highly appreciated. The author is especially anxious to avail himself of every source, and would highly appreciate all information concerning publications likely to be useful for reference.

All letters, contributions, clippings, books and other matter should be addressed to

JULIUS WISE, M.D.,
806 Olive street, St. Louis, Mo.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM AUG. 22, 1884, TO AUG. 28, 1884.

Head, John F., Colonel and Surgeon, granted leave of absence for four months. S. O. 201, A.G.O., Aug. 27, 1884.

Woodhull, A. A., Major and Surgeon, detailed as member of Med. Exam'g Board at U. S. Mil'y Academy, West Point, N. Y., vice Capt. R. H. White, relieved. Upon adjournment of the board to return to his proper station. S. O. 201, C. S. A. G. O

Lippincott, Henry, Promoted Major and Surgeon to rank from August 17, 1884, vice Woodward, deceased.

Bartholf, J. H., Capt. and Ass't Surgeon, relieved from duty in Dept of the Columbia, and to report in person to commanding general Dept. of Texas, for assignment to duty. S. O., 199, A. G. O., August 25, 1884.

Finley, J. A., Capt. and Ass't Surgeon. The leave of absence granted him in S O. 91, C. S., Dept. of Texas, extended two months. S. O. 196 A. G. O., Aug 23, 1884.

Crampton, Louis W., Capt. and Ass't. Surgeon, to report at Creedmoor, L. I., N. Y., not later than August 30, as competitor; and, in addition thereto, as medical officer of the detachment of competitors. S. O., 41, Div. of the Atlantic, August 20, 1884.

Taylor, M. E., Capt. and Ass't. Surgeon, granted leave of absence for four months, to take effect on arrival of a medical officer at David's Island, N. Y., to replace him. S. O. 200, A. G. O., August 26, 1884.

Cochran, J. J, 1st Lieut. and Ass't. Surgeon, assigned to duty at the Presidio of San Francisco, Cal., S. O. 81, Div. of the Pacific, August 16, 1884.

Fisher, W. W. R., 1st Lieut. and Ass't. Surgeon. When relieved by Ass't. Surgeon Cochran, to report in person to Commanding General Dept. of Arizona for assignment to duty in that department. S. O. 81, C. S., Div. of the Pacific.

McCaw, Walter D., appointed Ass't. Surgeon with rank of 1st Lieut, to date from August 20, 1884.

—THE—

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

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ORIGINAL ARTICLES.

THE FORMATION OF POISONS BY MICRO-ORGANISMS, CONSIDERED IN RELATION TO THE PRODUCTION OF DISEASE.

BY G. V. BLACK, M.D., D.D.S., JACKSONVILLE, ILL.

[Presented in Section of Practical Medicine and Materia Medica of the American Medical Association, May, 1884.]

INTRODUCTION.

If we review the history of the observation and experiment that has been had, bearing on the relations of micro-organisms to the production of disease, we may formulate the following propositions:

1. Experiment and observation has shown that there are many varieties of micro-organisms that do not produce disease or injury; that the mere presence of these life forms is not sufficient to cause disease.

2. Experiment has, also, shown that there are certain varieties of micro-organisms that do uniformly induce disease when they obtain entrance into the bodies of animals, or men.

3. All through the experimentation on this subject it has been noticed that poisons have appeared in connection with the disease producing organisms.

4. These poisons seem to be a product of the micro-organisms; and while produced only in connection with the life and growth of these microscopic plants, may be separated from them, and when so separated, induce direct poisoning similar to that induced by the poisons from the higher plants.

5. This poisoning is different from the disease induced by the growth of the micro-organisms in the body, in that it is direct, and immediate, while infectious disease arises only after a stage of incubation.

6. Therefore, it is probable that each infectious disease is induced by a specific micro-organism capable of developing in the blood or tissues, and forming a poison or poisons through the means of its vital energies; or physiological processes of digestion, nutrition, and the casting off of waste products.

These considerations suggest an extended examination of the physiological phenomena of life in its varied forms, as the best means of gaining a clear conception of the teaching of the facts developed by experiment. It will be seen by any one who reviews this whole subject closely, that, while the experimentation which has been had furnishes the strongest evidence that disease results from the presence of micro-organisms—is brought about in some way through the life and activity of these lowly forms—the *modus operandi* by which they induce disease has been but partially explained.

Indeed, thus far, the principal effort has been to show that micro-organisms are regularly connected with certain processes of disease, and that these in no case occur without this accompaniment, rather than to show how they induce disease. This was necessary, in the beginning of this work, for the collection and collation of sufficient data upon which to construct theories and found a basis of truth, from which inquiry may proceed to the more perfect explanation of the mysteries of this important subject. The germ theory of disease as it stands to-day is essentially a mass of unexplained facts, developed by direct experiment of the most subtle nature; so subtle, indeed, that there are but few men who have the natural endowments and rigid training necessary to verify them in a manner, and with the certainty that the thought of the time demands. Under these circumstances, and with the plain fact before us, that the mere presence of the organisms is not a sufficient cause of the diseases which experiment teaches us are induced by them, we naturally turn to the well-demonstrated fact that micro-organisms do give rise to *poisons*, for an explanation of these phenomena.

It is our purpose now to make an effort to trace the phenomena presented by the life force in its relations to matter, with the end in view of elucidating this difficult point. In this direction, as it seems to me, we are most likely to find a satisfactory answer to some of the teachings of experiment that have appeared difficult to understand. In a brief paper like this, however, we can only glance at the principal points necessarily involved in a complete discussion of the subject.

The phenomena that we will now review will be digestion, absorption, nutrition, and the formation of waste products in the several forms of life, after which we will study briefly the relations which the changed forms of matter induced by the physiological activity of micro-organisms holds to the production of disease. This is necessarily a biological study.

Digestion is a process of solution and chemical reorganization of food material by which it is fitted for reception by the life force. The material thus prepared is conveyed within the organism by absorption or osmosis. Digestion and absorption are the admitted forerunners of all nutritive processes; the initial steps by which nutrition is rendered possible. I

hold that this is true in all the varied forms in which the life force is manifest. That there may be substances that are made use of by the life force without previous digestion is perhaps true; but there is, perhaps, no living thing not provided with the means of this mode of food preparation.

For the lack of time in which to present this entire subject, I will only present a synopsis of the parts relating to digestion and absorption. All digestion is performed by soluble ferments, elaborated by the organism, whether this digestion be performed in an alimentary canal or elsewhere.

A soluble ferment is a substance or body elaborated by the organism, for the purpose of dissolving and rearranging the chemical forms of food material, fitting it for reception by the organism.

The formation of a stomach or alimentary canal is an arrangement for the conservation of force, but in no wise changes the *modus operandi* of the digestive function. The digestive body may be thrown out into the surrounding media where digestible material is suspended, or upon digestible solids, and perform its function without the aid of a stomach. In this way the yeast plant digests cane sugar. In this way the micrococcus ureæ digests its food. In this way the bacterium termo has been shown to be able to digest starch.

It has been proven that the pathogenic micro-organisms are capable of digesting their food, and rendering it fit for being taken up by osmosis, by growing them on solid media which could not be appropriated without such preparation.

The embryo of the seed digests the store of starch laid up for its nutrition, by eliminating a digestive body called diastase, and by this means prepares its food material for assimilation, until such a time as it shall have developed the organs by which it gathers its own food. The same is true of the embryo in the egg.

The higher plants take up substances that exist in an insoluble condition in the ground in which they grow, by means of an excretion by their roots, which performs their solution, rendering them capable of being drawn in by absorption or osmotic action. This is a form of digestion.

The tissues of the higher animals are capable of forming digestive bodies under certain peculiar circumstances; *e. g.* the digestion and removal of the roots of the temporary teeth at the time of shedding; the removal of bone during changes of form; the formation of sequestra in case of death of a portion of bone.

The tissues of the higher animals are also capable of forming a menstruüm for the digestion and removal of substances accidentally, or purposely, lodged in the flesh. This is seen in the digestion and removal of the sponge, in the sponge graft; in the digestion and removal of the catgut ligature; in the invasion and partial removal of the sequestra of dead bone, and of pieces of ivory driven into the flesh.

In short, everything endowed with life, is, also, endowed with the power of preparing the food material necessary for the support of that life.

WASTE PRODUCTS.

In the beginning of the germ theory controversy, Schwan seems to have recognized that carbonic acid and alcohol were the excrementitious products of the yeast plant (*Annalen der Pharmacie*, Band 29, S. 93 und 100), Liebig in opposing the theory, alludes to this and recognizes that such a conclusion would necessarily follow, if fermentation were proven to be the result of the life force. (Agricultural Chemistry, page 124). Since that time, however, this idea seems to have been lost sight of by writers on this subject. Sometimes we see indefinite allusions to it. But there is no definite expression of the general law, that all forms of life must have their specific waste products, as they are seen in the animal forms. The remoleculization[1] of matter is continuous with the duration of life. The life force is dependent upon the remoleculization of matter for its support. No manifestation of the life force, in any form whatever, can be conceived of without this accompaniment. As the steam engine is dependent upon fire for its power, so is the life force dependent upon molecular changes in matter for its continuous existence. We can have no conception of life in the material form without the accompaniment of these changes. All forms of life are continually taking into themselves fresh increment of matter, in some form. This fresh increment of matter is converted into other molecular forms, for the support of the energies of that life which performed this conversion; and when this is accomplished it must give way to fresh increments of matter, which in turn undergo similar remoleculizations. The old must give place to the new. There is no such thing as standing still, except with definite provisions for temporary inactivity. Otherwise than this, inactivity is death. As new material is added, the old must be disposed of; must be cast out, or built up into formed material; where it takes no farther part in the physiological activity of the organism. Continuous molecular change of matter (inmoleculization) is the law of physiological existence.

As the living form must be supported by fresh increment, so it must give back excrement. Life is not to be supported by the continuous remoleculization of the same matter. After it has once accomplished its function in the economy, it becomes unfitted for further use, and is disposed of in one of two ways. It is either built into formed material or it is cast out as excrement. In either case it is dissociated with the physiological activity of the organism. The sum of the excrement, and formed, or fixed material, must in all cases equal the sum of the increment. There is nothing lost, nothing gained. All increment not present in the organism, must have been given back to the outside world as excrement, no matter what the form of life.

There is a general law observed in the formation of the excrementitious matters. Liebig while opposing the life theory of the fermentations, gives expression to this, as a law of all fermentations. I translate from "Chemische Briefe, 6te Auflage, S. 358":

[1] The word remoleculization is used to express the fact that a molecular change has occurred in matter, without expressing the character of that change.

"Fermentation is always in its results, a splitting of combined atoms into a compound rich in oxygen, and a compound poor in oxygen; so in alcoholic fermentation a certain amount of oxygen is divided from the sugar in the form of carbonic acid, and we obtain the inflammable alcohol poor in oxygen." When we compare this statement with the facts now known, we find it correct. But we may do more than this; for if we compare this statement with what is now known of animal and vegetable life, we find that it holds good here also. For in the animal forms we have as excrementitious products, the same carbonic acid rich in oxygen, and urea poor in oxygen. Here we see, as a final result of the remoleculizations, excretory products analogous to those of the yeast plant. I have already shown that, in the physiological sense, there is a close resemblance, a certain oneness of plan, existing among all forms of life in the matter of taking food. Now it is my purpose to show that this identity of plan is extended to all the living forms, in the matter of waste product as well. While there are almost unending differences of outward conformation, there is a continuous physiological sameness in them all. While certain cells, endowed with the power of combination for the building up of wonderful forms, as in the man, or in the tiger, in the lofty palm, or the forest oak; others not possessing the power of organization into complex forms, fall apart and carry on their physiological processes simply, as in the yeast plant, or the mycoderma aceti.

In the unicellular organisms, all the vital functions so far as they are differentiated, are carried on in the single cell, and in the higher animals, which proceed from the growth and development of some single, and equally minute germ, specialization of function goes hand in hand with specialization of physical form. Yet in all this specialization, there is no radical change in the functions of the individual cells, nor is the sum total of the physiological phenomena modified in their nature.

In most cases, apparent new functions, seen as we ascend the scale of life, consist, when closely examined, of vicarious cell action. Not a new function, but a particular function performed for the community of cells, so to speak, by certain cells specialized for that purpose, as we have already seen in the consideration of digestion.

Waste products may be divided into two classes: the respiratory and the urinary. The respiratory product is always rich in oxygen, while the urinary product is always, comparatively, poor in oxygen. This distinguishing feature remains constant for all forms of life, whether animal, vegetable, or the lower forms, that are so doubtful that some have thought it well to create for them a separate department.

The waste products of the animal forms are sufficiently known. The consideration of them has been entered into by every author who has written on the subject of physiology. Therefore a consideration of them here is not necessary. All of the excrementitious products possess toxic, or poisonous properties in some degree. If, by the occurrence of accident, or disease, urea be retained in the blood of an animal, it soon presents symptoms of toxæmia, and if the accumulated urea is not speedily eliminated, the animal dies. This is a general law of the waste products. No living being can sustain life with a large percentage of its waste product retained in its circulation. Neither can a micro-organism continue to grow after a certain amount of its waste products have accumulated in the menstruüm in which it is placed. Urea may be regarded as the alkaloid of the animal kingdom, and is the analogue of the alkaloids of the vegetable kingdom.

The consideration of the waste products of the vegetable kingdom is especially difficult for several reasons: Plants are characterized by the large amount of their formed material, as compared with the food material consumed by them in their processes of vital activity, and therefore, the amount of their waste products actually excreted is proportionally small. In them, however, other means are found for freeing their circulating fluids of waste materials, than that of actual excretion as seen in the animal forms, which will be considered further on. There is, however, a sufficiently copious excretion of the respiratory waste product, carbonic acid, in plants, and in addition to this, oxygen. These are too well known to require further comment here.

There is also a true excretory function performed by the roots of plants, and by seeds in the process of germination. When barley or other grain is caused to germinate in pure chalk, acetate of lime is uniformly found to be mixed with it, after the germination is somewhat advanced. * * * In this case the acetic acid must have been given off (excreted) by the young roots during the process of the germination of the seed." (Vide Johnston's Agricultural Chemistry, page 81).

This well authenticated fact may be regarded as the foundation of the theory that plants are endowed with the power of excretion. It is supported by the authority of Decandolle, and the convincing experiments of Macaire, although the experiments of others have shown that this excretion is limited to very small amounts of matter. Macaire seems to have found opium in the soil in which poppy plants grew. He also found, on washing with pure water the soil in which these plants grew, that it yielded a considerable quantity of acetic acid, and a trace of a brown organic matter.

Liebig devotes considerable space to this in his agricultural chemistry, with special reference to the possible effects of these excrementitious substances on the rotation of crops. Other chemists have also occupied themselves with it; and while it has been definitely shown that in some special cases plants may eliminate a sufficient quantity of excrementitious matter to prove injurious to successive generations growing on the same soil, the rule is that poisoning from this cause is not to be expected. Enough has been demonstrated, however, to show conclusively that many of the substances formed in the fermentations are also excreted, in very small amounts, by various plants. Even alcohol and ammonia are formed in this way, in small quantity. Although these sub-

stances, as a rule, contain no nitrogen, their chemical construction is such as to show their relationship to urea, and leave no doubt that they are properly analogues of that product in the animal kingdom.

ALKALOIDS.

By far the most important compounds to be considered in this connection are the alkaloids. These bear the same relation to plants that urea bears to the animal forms. There is seen in their chemical conformation, and characteristic properties, a marked relationship; and yet among them is found a wide divergence of poisonous effects. All possess in some degree the power of intoxication, while a few are the most virulent poisons known. Nearly all are composed, as urea, of carbon, hydrogen, nitrogen and oxygen. In a few of them oxygen is lacking, and in all the nitrogen is in smaller proportion than in urea. As we descend the scale, the nitrogen disappears, the oxygen is increased, and we have the organic acids and alcohols. All of these are waste products of the vegetable kingdom, though they are not all excreted.

As we have already seen, the higher plants are marked by the apparently small amount of their waste products and the large amount of their formed material. The formed material presents two very marked characteristics, which will perhaps, be better understood if we designate them as formed material, and as fixed material. The formed material is elaborated and stored away for future use, such as the starch, oil, etc., surrounding the germ in the seeds, and in certain organs of the plant, and various other products designed for future employment by the vital energies of the organism. The "fixed" materials, on the other hand, are such as are placed permanently beyond the vital energies of the organism. Some portions of the fixed material may still be of use to the plant by the physical support it gives to its organs; as lignin, which forms the stems and branches of trees, and the bark which serves them as a protection. They are not, however, of any further physiological use to the plant after having once, or a few times, served as conduits for the circulating fluids. Although waste products may be found in the fluids, as in the blood of the animal, it is in the fixed material that we find the bulk of the waste products of the plants, and it is here that the toxic principles are found in greatest abundance. Instead of being excreted, thrown out to the outer world, they are stored in the disused cells of the wood, and bark, united with other waste products in the form of insoluble compounds. This fact seems to have prevented an early recognition of their real nature.

Sachs, in his text-book of botany, describes them as "degradation products, which are no longer useful to the plant," and as, "secondary products of metastasis." When we look over the products thus set apart by Sachs, we find that nearly all of them may be set down at once, as analogues of the urine in the animals, of the alcohol, the acetic acid, the butyric acid, etc., of the fermentations.

It is to these products that we look for the most of the vegetable substances now employed as medicines. The active principles of these are the alkaloids. Therefore their effects upon the animal economy are well known to medical students, and need not be recited here. There are many other substances found in this relationship to the vital energies of the plant, which are worthy of special consideration if we had the time at our disposal. Tannic acid is one of the most constant of these products, and there are a large number of others not yet mentioned. We will only mention one other class of substances, the coloring matters which remain in the wood cells in a fixed condition, as a result of secondary metastasis. Precisely similar phenomena are seen in the micrococcus chromogenes, of which there are several varieties known. All such circumstances serve to point us forward in our efforts to explain the mysteries of nature.

BACTERIA.

When we come to consider the waste products of the bacteria and the allied forms of life, we are at once amazed and astounded at the wonderful power they possess in the remoleculization of matter. This is one of their special characteristics. This seems to be the form of life in which the largest amount of food material is consumed and the largest amount of waste product given back, with the least building of tissue. The largest amount of remoleculization, with the least amount of formed or fixed material. A whole jar of milk is turned sour, every particle of its sugar of milk converted into acid, and yet the amount of the formed material is so insignificant that it requires an acute and trained observer, provided with the best means of search, to find a trace of it. When a small amount of yeast is added to a solution of sugar, the whole of the sugar will be remoleculized, producing carbonic acid and alcohol within a few hours. Then we may take the example of the destruction of the dead carcass. The history of the experimentation of the past shows conclusively that it does not decompose if protected from these low organisms. Yet within a few days it is swarming with this form of life, in the presence of which it melts away like ice before a summer sun. It is first attacked by one form, which consumes, and throws out its waste products, as long as it can work in the continually increasing quantity of its own effete matter. Then it must give way to others that have already appeared on the scene of action, to which the waste products of the first are no hindrance. These in turn, give way very soon to still other forms, which again remoleculize the waste products of all the former that may retain a semi-solid or a liquid form, with any residue of the original carcass that may still remain; and, in an almost incredibly short time, the whole carcass has disappeared. The labors of Pasteur have thrown much light upon this subject. The fact that the acetic acid plant will again remoleculize the waste product of the vinous yeast plant, alcohol; and after that the mucidines will still remoleculize the acetic acid, converting it in turn into still other compounds, is full of instruction for all these processes. It would seem that the vegetable world is divided into two great classes of life forms, and that it is the office of the one to build up, and the office of the other to

tear down. Of all the life forms, the higher plants have the greatest power of structure building, both as regards quantity, in comparison with the amount of material consumed, and as to the actual quantity of structure formed; while in the lower plants, the bacteria and their allied forms, exactly the opposite of this is found in every particular.

No other form of life consumes so much in comparison to the amount of structure built. They are emphatically the destroyers of organic forms, physiologically constructed to, and for this end.

They must digest their food. If it be solid or semi-solid it must be liquefied in order to be absorbed. Then it must enter into the cells by the process of osmosis, and under the influence of the life force, be converted into protoplasm—albuminoids—into the tissues of the growing plants. After this come the waste products. How? The cell dies? No. This will not explain the phenomenon. If it were the death of the cells we would find the chemical forms of the cells in the waste products. This is not the case. Death does not alter the chemical forms. Therefore, there is remoleculization for the formation of the waste products, A vital process of shedding out the used material. The life force letting go of the matter it has in its grasp, and casting it out, as no longer of use to it.

It is by a vital process, then, that the waste products are separated from the living organisms, and in the bacteria, the general laws of physiology remain unchanged. Here, as elsewhere, we find the definite respiratory product, and the toxic, or urinary product. A sufficient number of these have now been studied enough for us to gain some notion of them, yet our knowledge is still limited to a few forms, among the bacteria and their allies. The best known is the yeast plant. In this we have alcohol, succinic acid and glycerine, as the urinary excrement. The bacterium lactis produces lactic acid. The mycoderma aceti produces acetic acid. Another form produces butyric acid, another a kind of mucus, another ammonia; while others still produce as their waste products, all of the ill smelling products of putrefaction.

I append a table of those best known, in connection with a table of the waste products of other forms of life, for comparison.

Tabulated Statement of the Waste Products of Various Organisms.

Respiratory Products.	*Toxic Products.*
ANIMALS.	
Carbonic acid CO_2	Urea CH_4N_2O
	Creatine $C_4H_9N_3O_2$
	Creatinine $C_4H_7N_3O$
	Uric acid $C_5H_4N_4O_3$
	Hippuric acid $C_9H_9NO_3$
PLANTS.	
Carbonic acid CO_2	Theine $C_8H_{10}N_4O_2$
Oxygen O	Veratrine $C_{32}H_{52}N_2O_8$
	Morphine $C_{17}H_{19}NO_3$
	Quinine $C_{20}H_{24}N_2O_2$
	Strychnine $C_{21}H_{22}N_2O_2$
	Atropine $C_{17}H_{23}NO_3$
	Piperine $C_{17}H_{19}NO_3$
	Nicotine $C_{10}H_{14}N_2$
	Coniine $C_8H_{15}N$,
	Curarine $C_{10}H_{15}N$,
	Tannic acid $C_{14}H_{10}O_9$
	Acetic acid $C_2H_4O_2$
	Citric acid $C_6H_8O_7$
	Malic acid $C_4H_6O_5$
	Oxalic acid $C_2H_2O_4$
ALCOHOLIC FERMENTATION.	
Carbonic acid CO_2	Alcohol C_2H_6O,
	Succinic acid $C_4H_6O_4$
	Glycerine $C_3H_8O_3$
ACETIC FERMENTATION.	
Carbonic acid CO_2	Acetic acid $C_2H_4O_2$
LACTIC FERMENTATION.	
Carbonic acid CO_2	Lactic acid $C_3H_6O_3$
VISCOUS FERMENTATION.	
Carbonic acid CO_2	Mannite $C_6H_{14}O_6$
	Gum $C_{12}H_{20}O_{10}$
TARTARIC FERMENTATION.	
Carbonic acid CO_2	Propionic acid $C_3H_6O_2$
	Hydrogen H
BUTYRIC FERMENTATION.	
Carbonic acid CO_2	Butyric acid $C_4H_8O_2$
	Hydrogen H
AMMONIACAL FERMENTATION.	
Carbonic acid CO_2	Ammonia NH_3
(These two products unite to form ammonia carbonate).	
PUTREFACTIVE FERMENTATION.	
Carbonic acid CO_2 (Complex)	Valerianic acid $C_5H_{10}O_2$
	Ammonia NH_3
	Sulphhydric acid HS
	Fat acids (various eqv.) CHO

There is, perhaps, no other one set of organic compounds that have puzzled chemists more than those given in this table, or that have been, and still continue to be, of more interest in the scientific world. The table as it stands is only intended to give an outline view of these organic matters as a class, by setting before the reader fairly chosen specimens from the different forms of life. It is not intended to be in anywise exhaustive, but simply a comparison of these products. The similarity of their chemical construction will be apparent at a glance; and yet they differ greatly in their toxic properties. Some, as strychnine, are violent poisons to the animal kingdom. The members of the acid series vary from the alkaloids in that they contain no nitrogen, and they also vary as markedly in their toxic properties. Their close similarity to the alcohols will be noticed. It will also be noticed that some of the waste products of the higher plants are the same as those of the lower organisms.

There is, perhaps, an important difference to be observed here. The alkaloids of the higher plants, from the nature of their mode of excretion, are thrown out of physiological activity by being combined with the vegetable acids in the form of insoluble salts, and thus laid away in the "fixed material" of the plant. On the other hand, the animal alkaloids, urea, uric acid, etc., are eliminated in a soluble condition. In case of the micro-organisms, the waste products are very generally eliminated in a

soluble condition, also. But the comparatively more abundant product in the lower forms, is of much importance in this connection. Those given, are from the few that have been best studied.

In these no proper alkaloids have thus far been made out by isolation and exact analysis, but we cannot argue from this circumstance, that none of the lower organisms produce true alkaloids. As yet, but very few of them have been accurately studied, and these have, for the most part, been those that have been found useful, rather than poisonous.

On the other hand, we have much reason to believe that true alkaloids, of a poisonous nature, will be isolated at no distant day. We have already abundant evidence that poisonous properties are developed by a number of these forms. Otherwise how can we account for the results of the baccillus anthrax. How else can we account for sepsis, on the germ theory; except to suppose that a poisonous alkaloid is one of the products of the organism? How else can we explain Dr. Koch's results in the production of gangrene in mice, but to suppose that some product of the remoleculization by the organisms spread among and destroyed the tissues wherever they went. Again in the matter of sepsis, already referred to, it has been abundantly shown that the fluids contaminated by the bacteria are poisonous, when separated from the organisms; thus proving again that there is an organic poison developed which is fully capable of producing its effects in the absence of the life that produced it, the same as is seen in the alkaloids from the higher plants. This has taken the name of sepsin, after the order of the naming of the vegetable poisons; although it has not as yet been properly isolated and examined.

Many instances of a like nature might be brought forward if time would permit; but it is no part of my intention to treat this subject exhaustively. Some of the cases seem to show that the poison is of the nature of a local irritant only; as appears in Dr. Koch's demonstration of the bacillus tuberculosis; while many others seem to be general poisons with special tendencies to particular organs, as is seen in the splenic fever, produced by the bacillus anthrax. This is sufficient to show that there is much yet to be learned in this direction; indeed that this work is, as yet, in its infancy. In truth, the work done thus far has been in the nature of proving that organisms are regularly connected with the fermentations and decompositions, and, also, with certain processes of disease; rather than any effort to show how they bring about these results. This was necessary in the first instance, as the fore-runner of a farther, and more complete understanding of the subject that must come from a closer study of the modes through which these low organisms produce their effects. It is plain that we cannot know any one of the disease germs until all of the products of its remoleculizations have been isolated and studied, separate, and apart, from the organism itself, as has been done with the products of so many of the higher animals and plants. I see no other plan by which we can ever know the capabilities, and all of the possibilities, of micro-organisms in connection with the production of disease. In most cases of the discovery of poisonous properties in the higher plants, the specific product of the plant in which the poison resides has proven itself capable of isolation by the means known to chemists; and the disease producing poisons of the lower organisms will do the same when the effort to find them has been prosecuted with sufficient skill and energy. As alcohol has been isolated, as the vegetable alkaloids have been isolated, as the toxic elements of the waste products of animal life have been isolated, and as, through this isolation, the exact properties of these agents have become known to us, so must sepsin be isolated, so must the poisonous product of the bacillus anthrax (Anthracine) be isolated, so must the poisonous principle of every disease producing germ be isolated, and each of these studied separate, and apart, from the organisms which produce them; and in each case their properties must be demonstrated and determined by direct experiment, before they can be said to have been accurately studied, and that we know their properties and capabilities. This is the recognized means of learning the powers and capabilities of the higher plants and animals. No one is foolish enough to deny the value, the necessity, of the knowledge to be gained by this mode of study in the vegetable kingdom. If there has been any truth arrived at in all the research that has been given to the subject of the production of disease by the lower organisms, that truth requires to be extended, and rendered more exact, by the modes of study we have just indicated.

MANNER OF ACTION.

I may be permitted to make a suggestion in regard to the cause of the difference that is so often noticed in the comparative liability of different persons to attacks by these organisms. Several persons receive wounds. So far as can be seen, their chances for a speedy recovery are equally good; but some of these develop sepsis, while others do not. Now much of this is explained by the fact that we are unable to perceive the entrance of these organisms, and they may gain admission to the one and not to the other, and we be none the wiser until we find that sepsis is established. Yet over and above all this, there is a certain residue of cases that show that different persons are liable in different degrees, to sepsis, and the class of patients to which it refers, have been pretty closely defined. They are those whose powers of life have been weakened, by whatever cause. This is said to be the resistance of the tissues to the invasion of the organisms. How do they resist? Now if we accept the explanation of the formation of the digestive bodies, as previously explained, this supposition becomes tenable. When an organism, or spore of an organism, falls upon a cell, or naked granulation of a wound, and finds there the conditions suitable for its development, its digestive body is at once thrown out, for the preparation of its food material which exists in the tissues with which it is surrounded. This digestive substance proves irritant to the cell upon which the germ has fallen. This irritation excites the cell to throw out its peculiar digestive body for the removal of the irritant with which it is beset. Here we get a glimpse of the

antagonists. It is cell against cell; digestive body against digestive body. A contest has begun.

Which will win? The stronger, of course. If the man be vigorous, and resistant, and his tissues highly endowed with the energies of life, the chances are this much in his favor; but if, on the other hand, his powers of life be at a low ebb, if his tissues respond to irritants but feebly, then the chances are thus far in the favor of the intruding organism. In the first case, the cell upon which the intruding germ has fallen, responds promptly to the irritation; a substance calculated to free it from the effects of the intruder is formed, and poured out upon it, and meets the digestive body of the intruder, hindering, dissipating, and nullifying its action. In this way the intruding germ is in many cases, possibly, overcome and driven out or destroyed. In the opposite case, where the vital powers are at a low ebb, the response to the irritation is perhaps very sluggish, the digestive body is poor in quality, and scanty in quantity, and the intruding germ has an easy victory.

If we suppose that the intruder is a spore, a seed with a store of food material laid up within its shell, the case is not different essentially. The history of the experimentation on this subject shows that during this process excretory products are thrown off, and these may prove direct irritants that will arouse the resistant energies of the tissues.

Surely if the tissues are capable of forming, by reason of irritation, a secretion that will digest a piece of ivory that has been thrust into the flesh, which has been proven by direct experiment, we should expect this kind of resistance to be offered to the development of disease producing germs.

Again, the history of cases shows that sepsis is most liable to occur in the early time of the healing of wounds, at a time when the tissues may be supposed to be still suffering from the effects of the shock. In this case it must be supposed that the tissues are not so well able to contend with the intruding germs as they are afterwards, when the process of granulation is going forward vigorously.

We have also experimental evidence establishing this point. Sonnenschein found that certain bacteria with which he was experimenting failed to grow in the tissues of an animal. Believing from the results of previous experimentations, that sepsin injected with the bacteria favored their development, and having found the effects of sepsin similar to that of sulphate of atropia, he injected a small amount of that drug with the organisms, and found that under these conditions they grew and produced sepsis. It is difficult to see how the sulphate of atropia could aid the bacteria otherwise than by paralyzing the tissues temporarily, preventing their resistance until the organisms had established themselves. A number of other experiments have developed facts of a similar nature.

Gradle says, page 123: "We do not know whether putrefactive bacteria exert any direct influence upon the exposed tissue. Even if that be not the case, the products of decomposition which they engender irritate the wound in an unmistakable manner. This is seen in the redness and sensitiveness of the margins of the wounds. *These bacteria are always overcome by the tissues.*"

Observations have been recorded by a number of competent observers that go to show that the white corpuscles of the blood, the leucocytes and the wandering cells exert a special influence against the intrusion of micro-organisms. These cells appear to pick up the organisms and take them into their interior, and I am of the opinion that in very many cases the organisms are destroyed—digested—by these cells, but in other cases the cells are overcome—digested—by the organisms. It becomes a question of the relative power of the opposing digestive bodies.

CONCLUSIONS.

In conclusion, allow me to sum up in several definite propositions, in order that the discussion may be the better directed, and confined, to the more important points brought forward.

1. All cognizable forms of life are dependent on the production of molecular change in matter for their continued existence.

2. Every cognizable form of life, capable of independent existence, must have the power of digestion for the preparation of food material for the nutrition of its material structure.

3. Each living cell must appropriate to its nutrition food material prepared by a digestive body of its own formation, or by the appropriation of material prepared for it vicariously by some allied living cell.

4. Every living cell must support its life and material structure by the continued imbibition, and remoleculization of matter within itself; except during the special provisions of rest, as in the seed, egg, etc.

5. Every living cell must, as the result of the remoleculization of matter within itself, form waste products of two classes; a respiratory waste product rich in oxygen, and an urinary waste product poor in oxygen. All waste products are poisonous to the form of life from which they emanate.

6. Natural organic poisons are uniformly waste products of the organisms in which they are formed.

7. Pathogenic micro-organisms, by their remoleculizations of matter, form poisons of the nature of the alkaloids, which are the active agents in the production of disease.

8. While I should not class the digestive bodies, and diastases, as organic poisons, they may act as irritants when applied to another form of life than that which produced them.

9. The normal tissues of the animal resist the invasions of micro-organisms by throwing out, or forming a digestive body calculated to destroy them or dissipate and nullify their action; aroused thereto by the presence of, or the irritating agents given out by, the organisms.

A YEAR'S SURGERY AT THE LONDON TEMPERANCE HOSPITAL.

BY A. PEARCE GOULD, F.R.C.S., M.S.

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Read in the Section of Surgery and Anatomy of American Medical Association, May, 1884.

When in July of last year I had the pleasure of taking the distinguished President of the American Medical Association, and Professor Dennis, over the wards of the London Temperance Hospital, Dr. Flint extorted from me a promise to send a short paper to the Washington meeting of the American Medical Association, containing some account of my surgical experience at that hospital. It is therefore in redemption of that pledge that I venture to lay this brief communication before this distinguished audience.

In 1873 a house was taken in Gower street, London, and converted into a hospital for "the medical and surgical treatment of the sick, without the ordinary administration of alcoholic compounds;" and in 1882 the institution was removed to its present well-found and commodious building in the Hampstead Road. At first only 52 beds were opened, but at the present time, building operations are being carried on, and before the close of the year it is hoped that a hospital of over 120 beds will be in full working order.

In the autumn of 1882 I was asked by the Board of Management to undertake the charge of the surgical patients, and I entered on my duties on Jan. 1, 1883. I propose to lay before you a few facts derived from my experience since then, and will base them upon all the cases admitted under my care during the year 1883.

I must, however, make one or two preliminary observations to explain the nature and the mode of the work done at this hospital.

1. The patients are not all teetotallers; all the necessitous sick are alike admissible to the wards; and personally I may say that the fact of being an abstainer or the reverse never influences me in recommending a patient for admission. Practically a large number of abstainers seek admission, and I find that among my patients during last year they amounted to 74, or 39 per centum.

2. No selection of patients is made except such as is employed in every hospital, that is incurable cases and cases of infectious disease are the only ones inadmissible.

3. Alcohol is not given as an article of diet under any form or under any pretext; nor is it used in the preparation of tinctures, infusions, or other medicinal compounds.

4. The visiting staff are free to administer alcohol in any form and in any amount to any patient under their charge, when they deem fit. The only restriction being that in such cases careful notes should be made of the condition of the patient before the alcohol is given, the amount of alcohol taken, and the effects observed.

I am anxious that it should be clearly understood that alcohol is not excluded from the hospital altogether, but only as an article of diet and as a vehicle for other drugs.

In the early days of an hospital, and especially such an one as the London Temperance Hospital, it is not possible to keep the surgical wards full of acute or severe cases. But during the year 1883 I find that there were 190 cases admitted under my care. Of this total 9, or just 4.73 per cent. died.

I cannot, in the time allotted to me, give details of the individual cases, and I propose, therefore, to attempt only a brief classification of them, and to add a table of operations; details of the fatal cases, and then, finally, make some remarks upon the value of alcohol in surgical practice.

There were in all sixty-seven (67) cases of injury admitted into the hospital. Among these were five (5) cases of compound fracture, fifteen (15) cases of simple fracture, two (2) dislocations, sixteen (16) wounds, including wounds of scalp and a wound of the temporal artery with severe hæmorrhage; twelve (12) contusions, five burns and scalds. Of these 67 cases four died.

The cases of disease amounted to a hundred and twenty-three (123) with five (5) deaths. These included thirteen (13) cases of disease of the joints, fourteen (14) cases of disease of bones, twenty (20) cases of disease of the alimentary canal, twenty (20) cases of disease of the genito-urinary system, sixteen (16) cases of abscess, eleven (11) cases of ulcer, nine (9) cases of tumor, and twenty (20) cases that may be grouped as miscellaneous.

In one of these cases, to be mentioned directly, alcohol was given, but not in any of the remainder.

In addition to minor and trivial operations there were forty (40) operations performed which may be here detailed:

Amputation of thigh,	1
do of leg,	2
Colotomy,	1
Gastrotomy,	1
Castration,	2
Removal of tumors,	5
Rapid lithotrity,	1
Radical cure of hernia,	1
Excision of varicocele,	1
For hæmorrhoids and prolapsus ani by clamp and cautery,	10
Opening knee-joint,	3
For epithelioma of lip,	2
Excision of tongue and submental glands,	1
For genu valgum (MacEwen's operation),	2
Excision of tarsus,	1
External urethrotomy,	1
For fistula in ano,	3
For necrosis,	2
	40

It is only needful to add particulars of some of these cases. The amputation of the thigh was for advanced central sarcoma of the lower end of the femur. The patient, a lad aged 18, was up ten days after the operation, and left the hospital on the 22d day quite well. The first case of amputation of the leg was in a man 66 years of age, admitted with a compound fracture of tibia and fibula, for which secondary amputation through the upper third of the leg was performed. There was a little necrosis of the tibia, and a troublesome abscess and neuralgia in the stump, and the man was in the hospital 115 days after the amputation. The remaining amputation was at the same site for incurable ulcer of the leg in a woman, aged 55. The stump healed up without complication. The cases of colotomy and gastrotomy are elsewhere referred to. The patient upon whom rapid lithotrity was performed was 32 years of age, with a small stone. The knee-joint was opened in one case for the removal of a loose cartilage, with complete success. In another patient both knees were opened for very long standing hydrops articuli. The joints when apparently nearly healed suppurated, and the girl got into a hectic condition, and was removed from the hospital by her friends. I have since heard that she has recovered. In a third case I opened the knee-joint and removed the whole of the greatly thickened synovial membrane. This patient died. The only other operation of gravity was a removal of the tongue behind the circumvallate papillæ, by the scissors, and excision of infiltrated submental and submaxillary glands for advanced epitheliomatous disease. This patient, æt. 66, recovered well, left the hospital 35 days after the operation, but has since died from recurrence in the cervical glands.

The fatal cases were nine in number:

1. The first was the case of a laborer, 41 years of age, admitted with strumous synovitis of the left knee-joint, of four months' duration. He was a tall, thin, pallid, delicate-looking man. For two months he was treated with rest, extension, counter-irritation, and the usual remedies, but his local and general condition becoming worse, I was compelled to resort to operation. The man absolutely refused amputation, and I accordingly performed antiseptic erasion, making a free incision into the joint on each side, and removing the thickened synovial membrane. This was not followed by any effort at repair, but there was profuse suppuration, the discharge was scant, but the temperature ranged high, and he gradually sank and died from exhaustion. At the autopsy an old cavity was found at the apex of the left lung, miliary tubercle in the right lung, amyloid degeneration of the liver and kidneys; the articular cartilage of the knee-joint was all eroded.

His appetite continued good until a week before death.

2. The second case was that of a woman, aged 62, admitted with intestinal obstruction of fourteen days' duration. There had been vomiting three and again two days before admission, which was stated to be fæcal. But it was not until four days after admission that she vomited again, when she brought up several pints of liquid fæcal matter. Accordingly, as I had administered copious enemata repeatedly without avail, on May 26 I opened the colon in the right flank, and liberated at once about two pints of liquid fæcal matter. The woman, however, died next morning from collapse. At the autopsy a cancerous stricture of the middle of the transverse colon was found. The intestines were somewhat congested, but there was no lymph on them, or loss of polish anywhere, nor any evidence of peritonitis. There was hypostatic congestion of both lungs.

3. The third case was likewise one of intestinal obstruction in a young child aged 3½ years, admitted on May 27. There had been vomiting and constipation since May 22, and it was stated that "blood and slime" had been passed the day before admission. I first saw the child on May 29, and immediately opened the belly in the middle line, and found a small intussusception in the right iliac fossa, which I reduced. The small intestine was extremely distended, and in attempting to return that which had escaped through the incision, the peritonæum was torn. The child sank and died in nine hours. At the autopsy there was lymph on the coil of intestine which had been wounded, for a length of two or three inches. The intussuscepted gut, which was the lower end of the ileum, was purple in color, but not inflamed.

4. The fourth fatal case was that of a woman, aged 31, whose night-dress caught fire and was completely burnt off her, inflicting burns of the first, second and third degree, extending over the whole of the right upper limb, the left forearm, right side of the face and neck, and the right half of the back, chest and belly. She died on the seventh day, the temperature ranging between 102° and 104° Fah. for five days, and standing at 105° at the time of death. At the autopsy there was found some congestion, but no ulceration of intestines; hypostatic congestion of the base of both lungs, with acute bronchitis.

5. The fifth case was that of a little girl æt. 8, admitted on June 16 with caries of the spine and iliac abscess; the abscess was aspirated on several occasions. She died on July 30 from tubercular meningitis. At the autopsy there was found an enormous abscess connected with the diseased bodies of the vertebræ, and some gray granulations scattered through the lungs and pia mater.

6. The next death was a woman æt. 65, who suffered from a scald of the third degree, of the buttock, the right and left thighs, and the right leg. The sloughs separated and the wound began to granulate well, but 3 weeks after admission she became delirious, constantly muttering or crying out, although she could at times be roused and answer questions. She died from exhaustion 5 days after these symptoms set in. At the autopsy the only notable change found was the hypertrophy of the bladder, with pus in both ureters and the pelvis of each kidney, and a small abscess in the left kidney.

7. The seventh case was that of a man 67 years of age who was brought to the hospital with a subcoracoid dislocation of the right shoulder. While attempting reduction by Kocher's method, the surgical neck of the bone snapped across, but under chloroform the head of the bone was replaced in the glenoid

cavity and the fracture "set." The patient was made an out-patient on the third day. Unfortunately, he was a man of intemperate habits, and after a debauch he fell and sustained an impacted fracture of the neck of his right femur. For this he was readmitted and treated with rest in bed and a long splint. He was a very troublesome patient. For a time all went well. Then he sank into a low state with muttering delirium, and died 33 days after his readmission.

8. The eighth case was that of a girl æt. 16, admitted on Dec. 22 with an alveolar abscess in connection with the lower jaw. When I first saw her this had burst into the mouth. The swelling gradually subsided, but some induration over the jaw continued for some time. On Jan. 14 all local symptoms had passed off, but she was very pale, anæmic and thin, and I ordered her some tonic medicine. Next morning she became cold and collapsed, complaining of diffused pain over the belly. I saw her and found her almost pulseless at the wrist, with retracted belly and no local indications of the cause of the collapse. I ordered hot applications, sinapisms, and hypodermic injections of ether. I saw her again at night, when she appeared to be moribund. On going to the hospital next afternoon I was surprised to find her alive, quite conscious and less cold than on the previous evening, but there was no pulse at the wrist, and it was only feebly felt at the groins. Thinking there might be some chance for her as she had lived so long, I gave her at once an ounce of champagne; the pulse at once became perceptible in the brachial artery; in an hour the champagne was rejected, and she appeared to be holding her ground, but soon afterward she suddenly fell back in bed and died. Unfortunately, we were not allowed to make any post-mortem examination.

9. The ninth and last case was of a woman who was admitted on the evening of Dec. 31, having been picked out of the Regent's Park Canal. She was almost dead on admission, and in spite of every effort at restoration, including sinapisms and injections of ether, she died just after midnight. No autopsy was allowed.

I have thought it right to give these details of all the fatal cases, and I do not wish to explain away the facts. I think, however, that they show that all classes of cases may be met with in this hospital, that a fair proportion of severe injuries and diseases come there for treatment, and that in so far the wards of the hospital will bear investigation. I cannot tell what impression the notes of these cases may make upon my hearers, but I may perhaps add that I did not feel in regard to any one of them *at the time* that alcohol would have saved or prolonged life. As stated, alcohol was given in one case, and in none of the others was it withheld on account of prejudice, but solely for want of a sufficient indication for its employment.

I cannot convey any impression as to the way in which the patients progressed day by day while under treatment without alcohol, and the cases are too few to warrant the employment of the statistical method, and with a far larger number I should hesitate to adopt it. But it is not too much to say that they show the hospital to be actively engaged in the treatment of the same class of cases found in the surgical wards of any of the larger metropolitan hospitals, and that therefore its work is worthy of the careful attention of the profession. My object in this paper is not to show that alcohol may be or ought to be excluded altogether from surgical practice, but to show to how large an extent it can be dispensed with, with safety; and to express my conviction that its employment is not attended with advantage in a large majority of cases, while in many it is positively and seriously injurious. There is no stranger fact in the present-day therapeutics than the position held by alcohol. There is no disease and scarcely a single pathological condition for which it is not prescribed. It is a drug that never fails in the hands of the majority of practitioners; when cases improve the alcohol administered is invariably and without question accredited with no small share of the favorable result; when patients pass from bad to worse and die, the alcohol may have been given too late, or in too small doses, or have been overcome by a too-strong foe, but it certainly prolonged life and exerted a beneficial influence! Such, practically, is the argument of not a few practitioners, even if they hesitate to formulate it. The scepticism applied often so ruthlessly to other drugs has scarcely dared to hint that alcohol is not an all powerful remedy, able in one way or another to cope with any of the diseases of our frame. When the results of prescribing alcohol so widely come to be closely questioned, I am confident that it must lead every candid surgeon to restrict very largely the use of this drug. Without entering into a consideration of the physiological action of alcohol, or attempting to apprize its value in every class of injury and disease, I would submit the following propositions in regard to it:

1. *That alcohol is contraindicated in all cases where it is important to secure physiological rest!* I am aware that alcohol is a powerful *narcotic*, but I believe it to be a very rare conjunction of circumstances which permits of its successful employment as such without attendant evil from its *stimulant* effects.

2. *Therefore in the period immediately following operations and injuries*, especially large wounds such as in amputations and excisions, compound fractures, and severe hæmorrhage, *alcohol is contraindicated.* It is only admissible in those extreme cases where life is in immediate danger from failure of the heart, and in these cases we have in subcutaneous injections of ether a more potent stimulant.

3. *For exhaustive diseases alcohol is contraindicated except as a temporary stimulant*, and for the following reasons:

a. By increasing the frequency and force of the heart's action without at the same time proportionately increasing the nutritive activity of the heart, it hastens the exhaustion of that organ.

b. By dilating the small vessels it increases the difficulty with which the circulation is carried on.

c. By impeding the action of the digestive and assimilative organs it lessens the supply of nutritive material entering the blood. I have been much struck

by the appetite, the easy and regular digestion, and the absence of the common indications of gastric and intestinal trouble which patients who are not taking alcohol present.

d. By increasing the work thrown upon the lungs and the kidneys, the two great excretory organs of the body, alcohol hinders the proper depuration of the blood, and possibly hastens the occurrence of the hypostatic congestion of the lungs so prone to occur in these cases.

e. By its narcotic influence upon the central nervous system, it interferes with the due discharge of its functions.

4. *In alcoholism, whether acute or chronic, alcohol is contraindicated.*

RATE AND CAUSE OF MATERNAL MORTALITY IN 1,000 CASES IN PRIVATE OBSTETRICAL PRACTICE.

BY WILLIAM M. FINDLEY, M.D., ALTOONA, PA.

Read in Section of Obstetrics and Diseases of Women of American Medical Association, May, 1884.

While the rate of mortality, as given below, may be greater than that found in the experience of others, yet the writer apprehends that the causes as described, will make it appear that it is not excessive. The comparison between the same classes of cases in hospital and private practice, will show much more favorably if, as I think, due credit is given to the manifold obstacles which surround the practitioner in private circles. Called, as he often is, only "in extremis," when labor has progressed so far that a malposition which could have been readily corrected before the labor began, or in its early stages, has become an irremediable condition, is it any wonder that fatal results follow? Is it not the greater wonder that fatal results do not more frequently follow? Compelled to attend puerperal cases in the most unsanitary localities, and under the most unhealthy conditions, with no opportunity to remedy surroundings, or prepare the patients for the ordeal, is not the practitioner in private practice to be commiserated when comparison is made between him and those who serve in the hospitals surrounded with all the appliances of science and art to aid them; all the assistance required, either professional or otherwise, and in large majority of cases with time beforehand to prepare their bad cases for that which is before them, if, indeed, it be true that many of the fatal results follow uncleanliness, this being the leading factor as at present taught in causing the septic troubles.

Hoping that others who have like statistics may present them for the purposes of comparison, and trusting that still others may have had yet smaller mortality rates, I offer this:

Case 1. Woman, aged 23, first pregnancy, aborted about the end of the fifth, or beginning of the sixth month. Septicæmia resulting from the detachment of a very firmly adherent placenta, leaving a very large portion of the uterine surface in an injured condition, and in whom neither internal medication, nor medicated injections locally produced the slightest relief.

Case 2. Woman, aged 33, fifth pregnancy, was delivered in the same room in which lay two of the children of the family suffering from scarlatina. As she lived in a town ten miles away, and I was summoned by telegraph, arriving only to find her in the active throes of labor, and with no other place in the house to remove her to, she lay exposed to the scarlatinous poison, which developed in the characteristic pyrexia, eruption, etc., on the third or fourth day, and the end soon came. This case was attended for and in the absence of a practitioner who was already in charge of the scarlatina cases, and attended her after the delivery until her death.

Case 3. Woman, aged 19, first pregnancy, was delivered in what bid fair to be perfectly normal condition. but who on the second day had a severe rigor, very high temperature, and in short time was covered with the scarlatinous eruption, dying on the fourth day.

Case 4. Woman, aged 34, eighth pregnancy, who early in this pregnancy showed unmistakable signs of acute renal disorganization, fell into labor six weeks before the end of gestation, was delivered of a very small, feeble child, and in removal of the placenta, which gave no trouble, gasped, exhibited sudden indications of heart clot and expired, as it appeared to the writer, from the sudden absorption of additional urea into the circulation when the pressure exerted by the gravid uterus was removed.

Case 5. Woman, aged 26, second pregnancy, had been under the care of a midwife, as they were all Germans, for 20 hours; when summoned, found it necessary to perform version, which was done, and delivery effected in a few minutes, patient left perfectly comfortable, although exhausted; as it was at some distance, the patient was not seen again, but was informed that she died in 24 hours afterwards—no history of excessive hæmorrhage, and attributed it to exhaustion or heart clot.

Case 6. Woman aged 21, first pregnancy, labor only twelve hours in all, everything apparently normal until the end of the second day, when she had a very violent rigor, what was considered to be general peritonitis was developed, and she died at the end of the fourth day. There was a history of great mental depression here for a long time prior to the labor owing to unhappy marital relations.

Case 7. Woman aged 36, in the 9th delivery, who had been greatly exhausted by frequent pregnancies and very severe labors owing to very marked pendulous uterus, was delivered by version after failure to put on the forceps, owing to the hydrocephalic condition of the head; was very much prostrated and notwithstanding every effort was made use of to aid her, the state of shock persisted for 19 hours, when she expired.

Case 8. Woman aged 22 in her first labor, only

eight hours, was delivered of a healthy female child, without complication except a very slight laceration of the perinæum which was kept touched with astringents and antiseptics, but who, owing to an injudicious nurse's action in giving her a heavy supper of meats, etc., within twenty-four hours developed septicæmia, ushered in by a rigor and following the usual course for six days, terminated in death.

CASE 9. Woman, aged 29, in her first pregnancy, having been in perfect health up to January 28, 1883, was seized with a sudden pain immediately under the third dorsal vertebra which became so severe that the writer was summoned within thirty minutes of the inception of the trouble, and administered a hypodermatic of morphia which relieved the intense pain, but before doing so it was noticed that the lower extremities were paralyzed, and that there was retention of urine. The pregnancy had reached the end of the seventh month without further details, except to say that it proved to be spinal apoplexy, and that although the greatest care was exercised, a bedsore as large as the hand formed over the sacrum in twenty-four to forty-eight hours, and abortion was advised on consultation, and brought about, nothing seemed to avail and death closed the scene on the eighth day.

CASE 10. Woman aged 43 in the 11th pregnancy, who had experienced great trouble in all her previous confinements, had a fall one week prior to the date of actual labor, and then lost a large quantity of blood, but as the flow checked up by rest she received no medical attention; again two days before the writer was called, she suffered the loss of what was said to be a great quantity of blood, and again no medical aid was summoned; finally on the evening of Nov. 7, 1883, she had another frightful hæmorrhage, and on reaching the house I found her almost pulseless, and incapable of articulate speech; uterus high up; no dilatation of the os and no hæmorrhage at the time. As I could not reach the bag of waters to puncture, resort was had to the tampon, and large quantities of nutrient and stimulant liquids—the os dilated rapidly, labor progressed speedily and she was soon delivered without the loss of two ounces of blood additional. It appears to me that the whole process of labor was of the character which might best be described as ante-mortem, for the heart's action was very rapid and irregular, and she never gained complete consciousness during the time I saw her.

RECAPITULATION.

Septicæmia was accountable for	two deaths.
Scarlatina puerperalis . .	two "
Heart clot	one "
Renal disorganization .	one "
Shock	one "
Spinal apoplexy . . .	one "
Hæmorrhage, ante-partum .	one "
Peritonitis, general . .	one "
Total, ...	ten deaths.

It will be apparent in this limited number of deaths that the septic element is still the great factor, and while this is true, may it not also be true that with all our knowledge there may be some cases of true, or analogous to true, puerperal fever? a something more than mere sepsis introduced through a wound of the genitals. It is noticeable in the discussions of this subject in the New York Academy of Medicine that there were still manifested grave doubts as to total absence of something more than that which comes from without; although the weight of evidence was most in favor of infection through abrasions and wounds, rather than from a true autogenetic origin.

How to lessen the mortality in puerperal cases is a very important and interesting subject of discussion, and aside from the septic cases, the writer feels totally at a loss to know how to proceed or what to suggest in all the other conditions recorded as causing death from the standpoint of his personal experience. True, Dr. Busey in a late (April) number of the *American Journal of Medical Sciences* records a favorable termination in a case of scarlatina puerperalis, but is that not an exception to a very general rule of the fatal issue of that class of cases? and as he shows is largely true only of those cases which are attacked late in the lying-in.

And what shall we do in heart clot and marked renal disorganization, and shock and spinal apoplexy? As for ante-partum hæmorrhage, I doubt whether my patient would have died had she been seen at or after the first loss of blood more than a week before she was first seen by me. I might have used intravenous injections of blood or milk, but the efficacy of such measures is still a moot question, and totally impracticable in this case.

The great duty before the medical profession now is evidently the earnest endeavor to guard against septic infection in puerperal cases. It is the great effort in surgical treatment, and it matters little what measures are adopted so that perfect cleanliness is maintained, and such germicides are made use of as will destroy the noxious germs, not troubling ourselves about the multitudes of germs which are innocuous.

During the terrible epidemic of 1873, the writer was especially fortunate in having no septic cases except one case of scarlet fever, in the parturients coming under his care, while in a population of 10,000 or 12,000 there were a number of deaths, some 30 in all from that cause, rendering it a time of especial dread. These deaths, in very many instances, were among the class of women who were cared for by midwives, and frequently lacked all proper care, and, as I have been told, the disease often progressed so insidiously to the bad that danger was not apprehended until all hope was passed.

The septic deaths occurred in order in the 66th, 524th and 659th cases from septicæmia and general peritonitis, and in the 166th and 229th of scarlatina puerperalis, one of them, viz., the 166th of scarlatina puerperalis, in the year 1873.

As hinted in the discussion at the Academy in New York, long periods may elapse between the deaths from septicæmia, and unless carefully recorded may easily be forgotten, especially as all like to forget failures, unless willing to make them public for the general good, so that all mere assertions from memory

may and likely do prove fallacious, and the fact still remains that septicæmia is the one disease which we should most strenuously combat, and he who guards his parturient clientele most carefully from this insidious foe will be the one most fitted to practice his noble art.

In conclusion, as stated in a paper by W. W. Jaggard, M.D., as to the Vienna mortality in Carl Braun's clinic being only one-half of one per cent. from septic diseases, it is with a feeling of something akin to self-gratulation that the writer notices that the mortality in his list is not much greater, and that his entire mortality, omitting the two cases clearly not properly included in his death-rate, is only three-quarters of one per cent.

MEDICAL PROGRESS.

ANATOMY AND PHYSIOLOGY.

Observations on a Decapitated Head.—The observations related by Dr. Petitgrand, in a paper published in the *Revue Scientifique*, extracts from which are given in the *Medical News*, are highly important as furnishing the most precise evidence of the presence of consciousness after decapitation that exists. The man executed was a pirate, of robust frame and brave demeanor. He was an Annamite, and executed at Saigon. M. Petitgrand concentrated his whole attention upon him. He was placed in a kneeling posture, strongly attached to a solid post in front of him, with the head and neck voluntarily and strongly flexed.

The place for the blow having been marked with betel juice, the head was struck off at one blow by means of a long sword having a broad blade; the procedure, to be properly carried out, requiring great address on the part of the executioner, and much *sang froid* on that of the culprit. When this is the case there is, of course, far less contusion and concussion of the spinal cord than with the guillotine, and therefore so far a greater possibility of an ulterior manifestation of the functions of the encephalon. During the preparations Dr. Petitgrand never withdrew his eyes from the culprit, placed at two metres distance only, and with whom he more than once exchanged looks. The head fell within a metre and a half from him, without, as ordinarily, rolling away; and the divided part of the neck resting on the sand, the hæmorrhage which ensued was very slight. At this instant he was startled at finding the eyes of the head steadily fixed on his own, and not believing that this could be an act of consciousness, he rapidly described a quarter of a circle around the head, which lay at his feet, and saw plainly the eyes following this movement. He now returned to his former position, but more slowly, and the eyes followed him for "a very short instant," and then suddenly ceased to do so. At this moment the face expressed manifest anguish, the poignant anguish of a person in a state of acute asphyxia. The mouth opened violently, as if to take a last gasp of respirable air, and the head, thus displaced in its equilibrium, rolled on its side. This contraction of the maxillary muscles was the last manifestation of life, a period of from fifteen to twenty seconds having elapsed since decapitation.

From these facts Dr. Petitgrand draws these conclusions: (1) That the head separated from the body is in possession of all its faculties as long as the hæmorrhage is restrained within certain limits, and that the proportion of oxygen dissolved in the blood is sufficient for the maintenance of the nervous function—that is, for a short period, which in any case would not exceed half a minute. (2) That the repeated convulsive movements of the lower jaw, after the head has become detached—movements which, without doubt, have given rise to the expression, "biting the dust"—are nothing else than the habitual reflex movements of the face in acute asphyxia. These cannot be absent when the little blood contained in the decapitated head flows away or becomes disoxygenated, and are caused by the sensation (probably conscious) of the want of necessary oxygen in the blood remaining in the encephalon. On the present occasion Dr. Petitgrand had no opportunity of observing the trunk of this beheaded man, but he has had opportunities of observing it on other occasions, and has always noted the following circumstances: The head once detached, the trunk (the body being attached by cords to the post, is unable to fall) suddenly assumes the vertical position, columns of arterial blood springing up a metre or more in height. This straightening of the trunk, and the jets of blood being simultaneous, are in fact related to each other as cause and effect; for at each new systole, manifested by the projection of a column of blood, the trunk is raised, to bend again immediately. The jets soon do not ascend to more than a few centimetres, and the movements of the trunk are reduced to mere oscillations. After from twelve to fifteen systoles all the blood is evacuated and the trunk remains motionless, and as it were suspended to the post, which prevents it falling on the ground. Dr. Petitgrand has never noticed any elevation of the ribs or sinking of the epigastrium, or any other sign of an attempt at respiration. The heart seems to continue to live awhile its own proper life, as is shown by its violent systoles, which are capable of affecting the stretching of the trunk.

SURGERY.

Treatment of Nasal Polypus by Sodium Ethylate.—Dr. B. W. Richardson, in the *Asclepiad*, gives the following treatment for cases of polypus of the nose. He uses a long and slightly curved pair of steel forceps, the ends of which come to a fine point. He takes a piece of soft cotton wool, places it between the points of the forceps, and, twisting it firmly round the points, makes it into a good-sized, soft, flexible probe, like the end of a bougie. He saturates the cotton probe with the sodium ethylate, and then, having caused the patient to bring the polypus into view by sharp blowing of the nostril, he plunges the cotton, charged with the ethylate, into

the polypus, and retains it in position for two or three minutes. On removing the cotton it commonly happens that the patient can expel the whole mass of destroyed polypus, in a semi-fluid form, by again blowing the nose sharply.

After the substance of the polypus has been destroyed, a second cotton probe, treated with ethylate, as before and passed along the nasal cavity to the point at which the polypus seemed to be attached, will destroy the basis of the growth as well as the growth itself.

The modus is sufficiently clear. The ethylate solution, in contact with the water of the polypus, is decomposed into caustic soda and alcohol. The alcohol coagulates the albuminous part of the mass, and the soda acts as a destructive caustic on the surrounding parts, so that the point of attachment is destroyed. This mode of treatment, like that of the actual cautery, and the tearing process by the forceps, is painful. It is not a prolonged pain, and it ceases almost immediately after the operation is completed. There has been no instance of hæmorrhage, neither have there been any severe signs of inflammation, nor of fœtid discharge.

TREATMENT OF BUBOES BY ASPIRATION. — Mr. Weston, in the *Indian Medical Gazette*, refers to two cases of bubo successfully treated by Surgeon-Major Hogg by means of the pneumatic. "The men," he says, "went out of the hospital much sooner than they would have done had the buboes been laid open. In one case the operation had to be repeated once. A pad and bandage were used after the pus had been drawn off. In our military hospitals, where the ordinary plan of laying open the bubo is practiced, one often sees the resulting sore take on an unhealthy action, and, as a consequence, the men are kept in hospital for several months. It would be well, therefore, to give the aspiration treatment a thorough trial."—*Medical Times.*

GALVANOPUNCTURE IN ANEURISM OF THE AORTA. —Dr. Francesco Brancaccio, in the *Revista Internaz di Med. e Chir.* (*Practitioner*) reports the case of a man æt. 64 years, of intemperate habits, who complained of pain in the left anterior part of the chest, over the base of the heart, which radiated to the shoulders. The pain came on suddenly after a muscular effort, and was intermittent. Examination revealed a tumor, limited above by the upper border of the second rib, on the right by the sternum, on the left by the mammary line, and below was continuous with the heart. The diagnosis of aneurism of the ascending portion of the aorta having been made, it was determined to practice galvanopuncture. A fifteen-cell Daniell's battery was used, two needles being carried into the sac through the third interspace to a depth of 1⅕ inch, and 1½ inch apart. The first sitting lasted sixteen minutes. In the afternoon the patient felt better, the tumor was smaller, the pulse, which had fallen from 118 to 90, was stronger, and the respirations were less frequent. Twenty days afterwards the battery was again used, with twenty elements, for fourteen minutes. Altogether it was used four times, and the patient was completely cured.

CASE OF INTESTINES ADHERENT BEHIND UTERUS, CAUSING INTENSE PAIN, RELIEVED BY ABDOMINAL SECTION.—Lawson Tait, F.R.C.S., relates the following in the *Medical Times*: S. B., aged 32, presented herself at the Birmingham Hospital for Women early in November last, complaining of constant pelvic pain dating from her last confinement, and much aggravated by the patient having "strained herself" six weeks before. On examination, the uterus was found to be somewhat fixed with a mass behind it, very tender on pressure, and clearly cystic. But for the fact that she complained of no increase of pain before or during menstruation, I should have diagnosed the case to be one of occluded and distended tube. As it was, I made no diagnosis, but advised abdominal section. This the patient readily agreed to, and I performed it on November 8. I found a good deal of matter in the pelvis, and a coil of intestine adherent in the cul-de-sac. I undid the adhesions without much difficulty and closed the abdomen. She left the hospital on November 28, and has been entirely free from pain since. I have just seen her (July 7), and find that she has had no return of her old symptoms, and is in perfect health.

This case is a very instructive one, for the physical signs were precisely those of pyo- or hydro-salpinx; and if it had happened that the patient had suffered much at menstruation, I certainly should have set it down as a case of one or other of those diseases. Suppose that, under this belief, I had acted as some (who have had no experience) advise, suppose I had tapped from below, I should have done no good; I should probably have made my patient worse; I might even have killed her. On the other hand, following my rule of opening the abdomen, I was able, with very little difficulty, to cure completely a condition which distressed the patient, which put her in constant risk of her life, and for which no other remedy was possible.

MEDICINE.

INTESTINAL SEPTICÆMIA.—This subject, which has for some time been a question for discussion as to whether it is possible that the absorption of putrid material developed in the intestine could produce septicæmia, has its illustration in a case given in the *Lyon Medical* (*Lancet*). The patient, a man aged 44, was first treated for a strangulated gangrenous hernia of the right inguinal region. It was deemed advisable to make an artificial anus, and it turned out that this unnatural opening led into the ascending colon, and not into the small intestine. All was going on well for months, when one day, without any obvious cause, the patient became delirious, a scarlatiniform rash appeared on the whole surface of the body, the pulse increased in frequency, the pupils became greatly dilated, but there was no pyrexia. The fauces were not inflamed, though the throat was

said by the patient to be dry, but no lymphatic enlargement could be detected. The rash did not disappear. The symptoms could not be laid to the charge of belladonna or any other medicament, for the patient had not taken any drug whatever. As Zuelzer and Sonnenschein have extracted from putrid liquids a ptomaine giving rise to all the toxic properties of atropine, the physician in charge, M. Lépine, made the diagnosis of auto-intoxication by an atropic ptomaine. This hypothesis fully explained the strongly dilated pupils and scarlatiniform rash, and other symptoms, as well as an intense conjunctivitis which appeared later on, as did also an irregular pyrexia. The man died of asthenia. The necropsy revealed a horrible state of the large intestine beyond the artificial anus. The colon contained a putty-like mass, extremely fetid, and it is said of an odor *sui generis*. It seemed that the washings of the bowels, which had repeatedly been made, were totally inefficacious.

Treatment of Asiatic Cholera.—Dr. F. E. M'Farland, Honorary Brigade Surgeon, gives the result of thirteen years' experience in India in a paper in the *Dublin Journal of Medical Science*, and speaks strongly in favor of permanganate of potassium. He considers in order the following plans of treatment:

1. The calomel and opium treatment.
2. The salt treatment.
3. The belladonna treatment.
4. The permanganate of potassium treatment.

He dismisses the calomel and opium treatment with a few words. He has seen many cases recover under it. Some cases will recover in spite of any treatment as some will die; but he thinks the treatment adds much to the agony of the disease, and if it does not hasten the patient to the grave, does not smooth the passage. It may be laid down as a rule that opium should never be given once collapse sets in.

The second is the salt treatment, and there are two ways to use it. One is, common salt, ʒij; bicarbonate of sodium, gr. 36; chlorate of potassium, gr. 10; water, ʒviij; to be taken every half hour or hour, according to the symptoms. The other way is, half an ounce of common salt in a pint of water every half hour or hour. He has seen the mixture act very successfully, and more so than the plain salt and water. One would imagine either of these a nauseous draught; but anyone who has seen the avidity with which a cholera patient will suck down the last drop thinks otherwise.

The salt treatment has been referred to as follows: "More cases of cholera have recovered with the salt treatment, and more cases have died, than under any other," and he cannot speak more clearly of it.

The third plan is that of belladonna. There is some reason in this treatment. Belladonna is a sedative of the sympathetic system, which is the system affected in cholera. The form recommended is ¼ grain of extract of belladonna with gr. 2 of sulphate of quinine, in a pill freshly made up, every half hour or hour, till reaction is established. The belladonna treatment requires constant watching, is very trying to the physician, but is a method of treatment worth knowing of.

The fourth plan of treatment is permanganate of potassium, and is certainly, he says, the most successful he has seen. It has many things to recommend it. In the first place you can carry a small bottle in your waistcoat pocket, sufficient to treat hundreds of cases, and no other medicine is necessary; in the next it is a pleasant remedy. From beginning to end there is nothing in the treatment to cause apprehension to the patients or add to their sufferings. The plan adopted is to give a teaspoonful of a palatable solution of the pure salt every ten minutes, regularly, by the watch, until reaction is established, and then give beef tea, etc. One grain to four ounces of pure or distilled water is the strength of the solution required. The salt must be pure, and the solution must be renewed if it become discolored, as it sometimes does. Condy's Fluid will not do. Dr. M'Farland treated one case for six hours before any material sign of improvement took place, and after sixty doses reaction became thoroughly established, and the patient made a good recovery. At the same time another man was attacked, and his symptoms were relieved in less than two hours. With the permanganate treatment the patient may drink water freely, or, what is better still, meal and water, *warm*. The only thing is not to give the drink just on top of the permanganate, but wait three or four minutes. Some object on account of the smallness of the dose which is homœopathic. One medical officer gave it in ¼ grain doses; and this caused a burning sensation to the patient's throat, and added to his sufferings.

If more than a teaspoonful be given it is rejected, like everything else. The first symptom relieved is the sickness, then the thirst, then heat returns, purging and cramps cease, and after some hours the kidneys act.

As to accessory treatment, *drinks* he approves of, but does not see why ice is so much recommended, he has found that patients will enjoy drinking from a can of water into which a good handful or two of oatmeal has been put when it was hot, just as much as any other liquid. It is fluid they want, to supply the loss of water in the blood, and they will take it in any form. *Handrubbing* he thinks is often done too roughly—that the assistant should lubricate the hands well with warm oil, and knead, press, and squeeze the affected parts rather than rub them. For *injections* he would be inclined to try large quantities of a dilute solution of permanganate of potassium, as warm as the patient could comfortably bear, or large quantities of salt and water, with chlorate of potassium, well diluted and warm. As to *bleeding* he believes he has seen one remarkable case of recovery, where, after opening the vein, he could only squeeze out a few drops of black blood, like tar, but soon after he bled profusely and never had an unfavorable symptom afterwards. He believes in the *non-stimulant* plan of treatment.

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SATURDAY, SEPTEMBER 13, 1884.

THE DEMONSTRATION OF SYPHILITIC INFECTION BY VACCINATION WITH LYMPH FROM A SYPHILITIC CHILD. INEFFICIENCY OF EXCISION.—The advance guard of medicine of the present day is unquestionably exacting. The general spirit corresponds to the Laconic phrase in use among the speculative class—"put up or shut up." Demonstrate or cease your pretensions. It would seem as though the nature of syphilitic virus had wrought such devastations and developed under such circumstances that its capacity of operating through the vaccine lymph would be accepted by the most incredulous. Moreover there are not wanting in journalistic literature records which seem to verify the assumption. It is perhaps true that they may not bear the severe crucial tests to which indisputable facts are of necessity subjected. For practical guidance, however, one might have supposed the circumstantial evidence as satisfactory. But science says, no. Nothing but absolute demonstration. Here, as in other phases of life, the demand creates the supply.

Dr. Cory,[1] of London, as quoted by the London *Med. Record*, has experimented on himself "to test a current belief that vaccine lymph taken from a syphilitic person, if unmixed with the blood of the vaccinifer does not contain the syphilitic virus and is incapable of imparting syphilis by its inoculation." The report was made by very able observers, among whom is the well-known name of Jonathan Hutchinson, the other members of the committee being Drs. Bristowe, G. M. Humphrey and Ballard. Three experiments failed to impregnate the system, although all the children from which the vaccine lymph was taken were affected with genuine syphilis. The first experiment was made in 1877 or 1878, the fourth and successful one in 1881.

On July 6, 1881, C. caused himself to be vaccinated in three places with lymph — no admixture of blood — from the vaccine vesicle of a syphilitic child's arm, the immediate neighborhood being free from syphilitic eruptions. The vaccination was unsuccessful, but on July 26 (21st day) Dr. Cory observed that two of the places were red, in fact, papules. August 11, Dr. Cory showed his arm to Mr. Hutchinson and Dr. Humphrey, both of whom considered the spots to be syphilitic. And, as the sequel showed their diagnosis to be correct, the demonstration of the possibility of conveying syphilis by lymph from a vaccine vesicle was established. One important lesson which it would be wicked not to appreciate from this self-sacrificing experience is the possible danger of humanized virus. There is no practitioner who has not overlooked cases of syphilis, and no one can be in a position to say this or that child is not tainted with syphilis. Hence, the almost universal custom in America of using bovine virus is to be commended.

There is still another lesson of considerable import connected with the case. Dr. Cory did not hesitate as soon as Mr. Hutchinson and Dr. Humphrey, 36 days after the introduction of the virus, pronounced the sores syphilitic, to have them excised with all necessary and due precaution. Notwithstanding the excision, however, on the 31st day of August roseola developed on the forehead, temples, back of the neck and below the ears, also on the lower part of the abdomen. So that in this definite instance the excision of the chancres did no good as far as the prevention of the disease was concerned. This one circumstance must have its influence in modifying the enthusiasm developed in certain quarters of excising a supposed chancre.

[1] Supplement of the Twelfth Annual Report of the Local Government Board.

"CHILDREN OF THE SIEGE."—Such is the name applied in France to those unfortunate children who were begotten during the siege of Paris in 1871. We call them unfortunate, because conceived of mothers, who, torn alternately by the conflicting emotions of hope and despair, and too nearly famished themselves to spare requisite nourishment for their offspring *in utero*, were nevertheless compelled to yield to the lust of half-drunken husbands. Begotten of such parents amid the "horrors of the Commune,"

these "Children of the Siege" came into the world puny and misshapen. M. LeGrand du Saulle, one of France's most celebrated alienists, has stated that out of ninety-two such children examined by him sixty-four were crippled in mind or body; out of this number thirty-five showed malformations and twenty-nine were imbecile. There is nothing surprising in these facts. They are but impressive, because exaggerated illustrations of what we see about us daily; children born of want and intemperance. Is it any wonder that they grow up to beggary and crime. The lives of these "Children of the Siege" contain a lesson for us physicians, as well as for Ladies' Aid-Societies.

M. Legrand du Saulle, in the same address delivered last April, brought out some interesting facts concerning the increase of insanity in France since the Franco-Prussian hostilities. He has examined 35,000 insane, at the Prefecture, in the past fourteen years, and concludes that the intense excitement of those days is responsible in many cases for the mental alienation, having either produced it directly, or precipitated its manifestation. Furthermore, he attributes the increased insanity of this latter half of the century to thirst for pleasure, pursuit of wealth, speculation in stocks and intemperance, which last was the exciting cause in 25 per cent. of his cases. Again, is there not a suggestive lesson here for us of America. Our people are not given up to a search after frivolous enjoyment, as are the French, chiefly the Parisians, with whom it is an absorbing passion apparently, nor is there here that consumption of absinthe which is accredited with the speedy production of serious brain disease; but the excitement of our stock exchanges and boards of trade, high pressure in other branches of business, and the great consumption of alcohol, are evils against which physicians, as conservators of the public health, should raise a vigorous protest.

Progress of Cholera in Europe.—During the week ending Sept. 8, despatches show that the epidemic cholera has been making but little progress in France and Spain, but has extended much more rapidly in Italy, the scourge prevailing very severely in Naples. In the city just named, 451 new cases and 154 deaths are reported as having occurred during the twenty-four hours preceding the evening of the 8th inst. A large part of the inhabitants are represented as panic stricken, and as resorting to superstitious rites and ceremonies to a degree that would have disgraced the inhabitants in the darkest ages of human history.

The London Temperance Hospital.—It is with much pleasure that we give our readers, in the present number of the Journal, the paper presented in the Section of Surgery and Anatomy of the American Medical Association, at its meeting in May last, by Dr. A. Pearce Gould, of London, containing the results of one year of practice in the surgical department of the London Temperance Hospital. The facts and statistics presented, and the sentiments accompanying them, are worthy of the most careful consideration, especially by that large class of medical and surgical practitioners who practically use alcohol in some form, as though it was a universal panacea for human ills.

The American Association for the Advancement of Science, in annual session in Philadelphia during the past week, has been largely attended, and much valuable scientific matter has been presented in the various Sections. The interest manifested and pleasure enjoyed in the receptions and social relations of this anniversary, have been greatly increased by the very large number of foreign visitors present.

The Late Dr. Grafton Tyler.—The interesting biographical sketch of the late Dr. Tyler, so long and well known in Washington and Georgetown, which was unexpectedly crowded out of our last week's issue, will be found under the head of Necrology in the present number.

Prickly Heat.—Mr. Henry T. Wharton in the *Lancet*, records a case of this distressing affection in a medical man who was subject to it each summer, after passing the age of thirty years, until it became intolerable. From the conspicuous follicular lichenous inflammation on his back, he could not bear to take a Turkish bath in public or to turn up his shirt sleeves in ever so troublesome an obstetric case. From May to November he was a martyr to his troublesome malady. He consulted all his friends and more than one distinguished specialist. His efforts to get cured were as unremitting as they were unavailing. At last the idea occurred to Mr. Wharton that perhaps the tight short-sleeved India-gauze undershirts worn in the summer were too thin either to absorb the perspiration, or to protect the skin from sudden (but perniciously grateful) chills. They were changed for the thickest long-sleeved undershirts made entirely of wool, such as worn in the depth of winter, resulting in the absolute cessation of his experience of "prickly heat." For years he suffered a transient attack of urticaria—itching without any outward signs, after a cold bath. Since he has taken to the constant use of hot water for all his ablutions, this irritation has never returned.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

Regular meeting September 1, 1884. "Remarks on Aneurisms," and exhibition of a large specimen by Dr. J. A. Robison.

Recent Treatment of Asiatic Cholera, as in vogue in Southern India, by Dr. H. M. Scudder.

"Remarks on Aneurisms," and exhibition of a large specimen of an aneurismal sac of the arch of the aorta, involving the aortic valves, was the title of a paper read by Dr. J. A. Robison. The following abstract which has been prepared by the Secretary we herewith append. We omit giving the etiology, pathology, and diagnosis of aneurisms, and proceed to the general principles governing their treatment, which have been to prohibit the patient from taking much exercise, to secure as nearly as possible absolute rest, and to restrict the diet. Where the heart was tumultuous, cardiac sedatives were exhibited. Such symptoms as dyspnœa, pain, etc., have been met with appropriate palliatives. The first attempt at specific treatment for internal aneurisms was employed many years since by Albertini and Valsalva, and has been known as Valsalva's method. It consists in weakening the patient by repeated blood-lettings, and by gradually diminishing his meat and drink till only half a pound of pudding was taken morning and evening, with only a measured quantity of water; so that at last the patient was so exhausted he could not lift his hand from the bed in which he was ordered to lie from the commencement of the treatment. When this stage was reached the amount of nutriment was increased until the patient's strength was restored. It is needless to say that this plan of treatment did not yield the beneficial results which were anticipated. In our day it would be regarded as barbarous were we to try and enforce it to the extreme to which Valsalva reached. A modification of this treatment, consisting of enforcing absolute rest in bed, and diminishing the food and drink, so as to diminish the quantity but not the physiological quality of the blood, has benefited a number of cases, if not entirely cured them. While some physicians have refused to employ the depleting treatment, they have resorted to measures fully as severe. Dr. Murchison and Mr. Moore, of England, have recommended, and in one case tried, the introduction of fine wire into the aneurismal sac, on the theory that the large amount of surface exposed to the circulating fluid would produce coagulation of the fibrine. In the case referred to they introduced twenty-six yards of fine iron wire into the aneurismal sac, and it is needless to say that the treatment was unsuccessful, although they contend that the result obtained demonstrated the principle was sound, and that further experiments were justifiable. A much less dangerous and probably more efficient mode of treatment is by electrolysis. Pravaz was the first to use electrolysis for reducing external aneurisms, and Cinicelli and others have applied it to internal aneurisms, but with very different results. Its employment has been extended to thoracic and abdominal aneurisms, but in eight cases of thoracic aneurisms only one was benefited; the others being unsuccessful. Only one case of abdominal aneurism was cured, and this patient died from rupture of the sac, on account of premature exertion. The results obtained from the use of the galvano-puncture have not justified us in expecting to hope for much from that method. Professor Langenbeck has published accounts of two cases which he claimed to cure by hypodermic injections of one-half to three grains of Bonjean's watery extract of ergot every three days. Balfour says he has tried this method frequently, but without any success, although he was positive that his ergot was active.

Pressure as a mode of treatment is wholly inapplicable to thoracic aneurisms, and rarely to abdominal. Dr. Murray records a case of abdominal aneurism in which pressure on the aorta for five hours, the patient being under chloroform, was successful.

We will now speak of the treatment of internal aneurisms by the administration of the iodide of potassium. It is conceded by Flint and Bramwell, and insisted on by Balfour, that the iodide of potassium is the only drug which offers any hope of cure, and that in every case it will relieve the distressing symptoms, if it does not effect a cure. Balfour says: "Of all the various modes of treating internal aneurism, there is not one hitherto mentioned which is not attended with considerable risk or danger, except Mr. Tufnell's plan of perfect rest, while the advantages to be derived from some of them are, to say the least, very problematical. But the treatment by the iodide of potassium, of which the author now writes, is perfectly safe and free from all risks, and it is equally certain to afford relief, at least no case has been yet found where relief was not attained, though naturally enough that relief is not always to be got instantaneously, but requires the treatment to be continued for some time. It also relieves the pain and other symptoms of aneurism more rapidly and more effectually than any other treatment, apart even from the powerful agency of the recumbent posture; and for the time it has been in use it has given greater and more permanent relief to a larger number of cases of aneurism than any other mode of treatment whatever. Indeed the relief to the pain and other symptoms is so great and so speedily obtained, usually from the action of the drug alone, that it is often difficult to get the patient to submit to any restrictions, besides it is not always necessary. The author has employed this method of treatment during the last eight years in a very considerable number of cases, with unvarying success so far as the relief to symptoms is concerned, and with such favorable results as to retarding the farther progress of the case, and even in some cases promoting an apparent cure, as certainly to stamp this treatment as one of the most efficient hitherto propounded for the relief of this intractable complaint.

Balfour relates the history of twelve cases treated by this method with the following results: the symptoms such as pain, dyspnœa, etc., were relieved in every case; the physical signs of aneurism were diminished in seven cases, pulsation of the tumor

ceased in two cases, diminished in four, and was not apparent from the commencement in six. The aneurismal tumor disappeared in three cases, and diminished in five; the bruit disappeared in two cases and diminished in two cases, but never existed in two cases. Five of the patients were so relieved that they could work, four were discharged at their own request, feeling well, one patient absconded, and the result of treatment in his case is not known. Five cases were termed cured, and seven were not cured but relieved. One of the twelve cases referred to was an aneurism of the innominate artery, which was cured, and Balfour claims to have cured several cases of aneurism of this artery. One of the four cases discharged at their own request was under treatment three different times, being discharged twice at his own request, but died suddenly while under the third course of treatment, the autopsy revealing an aneurism of the aorta which had ruptured into the lower lobe of the right lung. One of the twelve cases was diagnosed as a weeping aneurism, implicating the origin of the left carotid, and communicating by a small opening with the left bronchus, the patient on admission expectorating arterial blood, but this soon ceased and the patient was discharged cured. While the writer did not believe he was justified in being as enthusiastic in the praise of the iodide of potassium treatment, as Balfour, he did believe he was justified in relating the following case, and giving the iodide of potassium the credit of prolonging the patient's life and making his life comparatively comfortable:

John H. C., aged 40, a blacksmith, was first seen in March, 1883. Had had attacks of inflammatory rheumatism several years ago. In February, 1883, was attacked with severe pains in the chest, in the præcordial region, and was treated by his physician for rheumatism for some weeks. Dr. J. P. Ross saw him and diagnosed aneurism of the aorta. At this time he had a good deal of dyspnœa, some hoarseness of the voice, and quite a little difficulty in swallowing solid food. When fatigued the pains in his chest were excruciating. No tumor was perceptible, although there was pulsation in the upper sternal region, and dulness upon percussion over the area of pulsation. Two months afterward there was a swelling in the upper sternal region at the junction of the left first and second ribs, about the size of a silver dollar. A very slight bruit was heard. The voice was very husky, and the difficulty of deglutition had increased until now the patient could take no solid food whatever. He had emaciated and was losing strength very rapidly. He was ordered to lie in bed continuously, and was given 15 grains of the iodide of potassium three times daily, gradually increasing the dose until signs of iodism appeared. It was truly remarkable how soon after this plan of treatment was inaugurated, the patient expressed himself free from pain and the distressing symptoms from which he had suffered. He persevered this way until May, when he said he was so well and weary of the bed he would like to sit up. Leave was granted. A few weeks after, the writer was surprised to see him walk into his office. The patient complained of nothing. He was cautioned against such experiments, and he was told to return home and take better care of himself. His condition at this date was as follows: the continued pulsation of the tumor against the chest-wall had produced absorption of a large portion of the manubrium and an inch of the inner portion of the left first and second ribs. Consequently there could be felt the pulsations of the tumor through the chest-walls at a point where only soft tissues intervened. No bruit was discernible. On laryngoscopic examination we found complete paralysis of the left vocal cords. His voice was anserinous. During all these months he had been taking the iodide of potassium without any disturbing effects, until now, when he complained of symptoms of iodism. He was permitted to discontinue its use. From the date of this office visit he grew rapidly worse. He rapidly emaciated, dyspnœa and dysphagia increased, and finally he died of asthenia July 19, 1884, about 17 months after he began treatment.

Autopsy.—On opening the thorax a large aneurismal tumor was seen behind the sternum, about five inches in diameter. Friable adhesions of the sac to the sternum were broken up when the sternum was removed. Absorption of a large portion of the sternum and the left first and second ribs had taken place. Heart and pericardium were normal. Adhesions between the aneurismal sac and the left lung. The left lung was pressed upward and backward into the left pleural cavity, and collapsed. On opening the heart find the aortic valves roughened. Extending the incision into the arch of the aorta, find it dilated and at the anterior of the arch between the origin of the innominate and the left carotid arteries, an opening, oval in form, one inch by one inch and a half, into the sac of the aneurism. Through this opening the walls of the aorta were continuous, forming the wall of the aneurism. The tumor was firm, being composed of coagulated fibrine, and was then shown. Dr. Robison answered a number of informal inquiries relative to it, when Dr. John Bartlett cited briefly the history of a case of general chronic bronchitis and asthma, occurring in a man 70 years of age, who was supposed to be suffering from consumption for 50 years. Eight years ago when the patient came under his observation, he ordered him to take eight grains of iodide of potassium three times a day. He has not omitted a day since to take the medicine, and he has steadily improved, his kidneys have performed their natural function, his appetite has not been impaired, and he has grown fatter and stronger. The case is an illustration how long a patient may take iodide of potassium continuously without injury to the mucous membrane of the stomach or injury to the kidneys.

These remarks were followed by the reading of a paper entitled "The Recent Treatment of Asiatic Cholera as in vogue by European Surgeons of late years in Southern India," by Dr. H. M. Scudder. An abstract of which is published as under, will be read with much interest at this time, inasmuch as the writer favors a particular mode of treatment in this disease. It has been his lot during nine years' practice in India to pass through four epidemics of cholera and have the disease. He was the only European

physician in a town of nearly 50,000 inhabitants, and was at the head of a district hospital supported by the English Government and was called upon to treat a large number of cases.

One of the severest of these epidemics occurred during the famine of 1877–1878. The writer was at the time assigned to take medical charge of a large enclosed famine relief camp containing over 5,000 persons, and where often as many as 300 at a time were ill with the disease in the hospital sheds, with a death-roll during the height of the epidemic of over 50 per diem. In this camp he had the opportunity of trying, on an extensive scale, different remedies and the various modes of treatment and comparing the results. We will not take space by the enumeration of the long list of remedies that have been made use of in the treatment of cholera, or by the discussion of the value of the numerous and various forms of treatment that have been advocated, but confine this synopsis substantially to giving a description of the mode of treatment that is now employed near Madras and Calcutta. Before passing on to the subject proper, a word may be stated in reference to the writer's views upon the contagiousness of the disease. Said he: Cholera is an infectious disease and also somewhat contagious, though not highly contagious, or readily communicable by personal association with the sick as is the case with small-pox and measles. The noxious power of the cholera germ or virus (whether it is Dr. Koch's microbe or something else) seems to be more powerfully exerted sometime after it has escaped from the body of the patient than when it is freshly passed. From careful observation, study and experience in four epidemics of cholera, he has deduced the following, that the attendants and those who come into frequent and close contact with cholera patients are somewhat more apt to contract the disease than those who do not.

For purposes of treatment the writer divided the course of this disease into the following stages:

(1) A period of prodromes or prodromic stage.
(2) A first stage or stage of diarrhœa, or cholerine.
(3) A second or stage of invasion.
(4) A third or stage of collapse (algid state).
(5) A fourth or stage of reaction.

This last stage may be succeeded by a typhoid condition, or cholera typhoid state, or the patient may pass directly into a state of convalescence. In the prodromic stage, manifested by lassitude, mental depression, chilliness, nausea, and abdominal discomfort, give 10 or 15-drop doses of spirits of camphor in dessertspoonful of hot brandy every hour or two, but be careful not to allow any considerable quantity of stimulants to be taken. When epidemic cholera is prevalent, many are affected by the symptoms just described. If the remedies indicated were promptly taken the writer is confident that many attacks of cholera would be warded off. It is true that fear often produces these very symptoms, but the spirits of camphor in spoonfuls of warm brandy tends to soothe the fears and dissipate the symptoms, and yet it does not usually disorder the digestion. As soon as diarrhœa supervenes, the administration of preparations of opium together with aromatics, camphor, and a little chloroform is urgently called for.

Two parts chlorodyne to one of spirits of camphor is a very good combination, 30 drops to a dose, to be repeated as required.

Another very serviceable preparation consists of equal parts of spirits of chloroform, spirits of camphor, laudanum, aromatic tincture of rhubarb, and tincture of ginger. Teaspoonful doses every hour or two, according to the urgency of the case, or until four or five doses have been taken, alternating with either of these three combinations, an aromatic sulphuric acid mixture may be given to advantage.

A popular formula is as follows:

℞ Acid sulphuric aromat ..... ℥i
Tincture opii deodorat ℥ vi. vel.... ℥i

M. Sig. 20 or 30 drops in water every hour or two.

The writer suggested the importance of administering these remedies hot, unless they create nausea. The hot water (2 or 3 tablespoonfuls) in which the doses are given may be sweetened if desired. The patient should be required to lie down, and be kept perfectly quiet, covered with heated blankets, and dry heat applied to the surface of the body, especially to the extremities, by means of heated flatirons, hot bottles, etc. In India the administration of calomel to any extent has lately been discouraged. One or two doses may be given if thought best, but not more. As soon as frequent vomiting commences, or stage of invasion becomes established, the combinations containing opium, which have been mentioned, had better be discontinued, and either of the following mixtures given instead in teaspoonful doses at intervals after a spell of vomiting, while at the same time some morphine or morphine combined with chloral, should be administered by hypodermic injection, as the severity of the case demands. Either of the following formulæ may be chosen for exhibition internally every half hour or hour, just after vomiting:

℞ Chloroform, tincture capsici, tincture canab. Ind. āā ♏xxx, acid hydrocyanic (dil.) ♏xx, ether ♏viii, spirits menthæ pip. ♏xv, syrup sassafras comp. ad ℥is. M. S. A small teaspoonful every half hour or hour.

℞ Spirits ammonia aromatic, spirits chloroform āā ℥i (each one ounce), tincture capsicum, compound tincture cardamon, tincture of ginger āā ℥ss (each half an ounce). M. S. Give in same dose as above.

A mixture of aromatic powder, gum arabic, and acetate of lead may be given after each evacuation.

The writer further stated that it was important to bear in mind that some preparation of opium or morphine, or morphine combined with chloral is the chief remedy for cholera, and the surest agent we can use to arrest the progress of the disease. When called, therefore, to a case already in the stage of invasion, morphine or morphine and chloral, should be administered hypodermically without delay, in order to get these sovereign remedies into the system as soon as possible. For, if we can arrest the disease before the patient has become collapsed, his chance of recovery will be greatly increased. Caution must be exercised, however, when this form of treatment is pursued, for narcotism is easily induced by repeated hy-

podermic injections, whereas very large doses of opiates can be given in this disease, by mouth and rectum, with comparative impunity. The strength of solution generally employed for injection is morphine gr. iiiss vel. gr. iv, with chloral hydrate ʒiiss vel. ʒiii, to the ounce of water. Inject 20 or 30 minims. The hypodermic use of morphine and chloral is, of course, contra-indicated when the stage of collapse has become developed. During this stage it is most essential that the patient be kept perfectly quiet, and in the horizontal position. No violent rubbings should be allowed; but the author has found it beneficial to gently rub the limbs and extremities with hot oil. To allay the thirst, let the patient suck ice frequently. Carbolic acid water, or simple acidulated effervescing drinks may also be given by the tablespoonful. It is unsafe to allow the patient to drink any fluid whatsoever in large quantities in this stage, especially when the acts of vomiting and purging have become less frequent, and the algid state well developed. Very small quantities of stimulants are useful, but they should be given with great caution, lest vomiting should be provoked. Stimulant enemas may also be given, but where the stomach has an inverted action it is often better to inject small quantities hypodermically. Experience teaches us that anything like the free use of stimulants in cholera is uncalled for and exceedingly harmful.

The reader had sometimes used small doses of atropine and strychnia, administered by hypodermic injection, apparently effectual in bringing about reaction. Amyl nitrite by inhalation may be given a trial, but it seems to exercise very little permanent or beneficial effect. Intravenous administration of milk and salines may be resorted to, but the reaction they induce is not generally of a permanent character. So that many of those who have given this method a fair trial have abandoned it. Of late years in Southern India, careful experiments have been carried out in reference to the value of impregnating the atmosphere of the sick-room with sulphurous acid by burning sulphur. The result has been, that this procedure has been introduced as part of the treatment of cholera. The writer has, on several occasions, tried this plan by subjecting the inmates of two different cholera sheds to exactly the same conditions and treatment in every respect, with the exception that in one the atmosphere of the shed was impregnated with sulphurous acid, and in the other this precaution was omitted. He found that the proportion of recoveries was considerably greater in the sheds where sulphur was used.

He therefore considers this an important adjuvant as part of the treatment. The atmosphere should not be so highly impregnated as to cause the patient or attendants to cough violently. Sulphurous acid thus applied is not only a useful remedy, but it is also believed to decrease the liability of the disease being propagated or contracted by the attendants. During the stage of reaction great care should be exercised, vomiting often continues, and the normal absorbing of the stomach and intestines is but slowly restored. Liquid nourishment by the spoonful should be most cautiously given, well salted broth, and milk given as hot as possible and not too frequently are the only forms of food admissible until the enfeebled stomach shows signs of recovering its tone.

Peptonized beef tea and milk are frequently well borne if carefully prepared, so as not to nauseate the patient. If vomiting persists, the following emulsion may be given if deemed best:

℞ Acid carbolic gr. vii, bismuth sub. nit. ʒii, mucil acaciæ, aqua menthæ viridis, āā ʒi. M. S. A teaspoonful every hour or two.

But in this stage it is good treatment to let nature do the work of restoration, and give as little medicine as possible. We must bear in mind, however, that the kidneys must be assisted to resume their functions, and for this purpose mild diuretics, such as potass. nitrate, should be carefully administered. If fever supervenes, it is apt to be of a typhoid character. A combination of iodine and carbolic acid then exerts a beneficial effect. A popular formula is as follows:

℞ Acid carbolici.....gr. iiiss
Tincture iodine.....gtt. xv
Aq. menth piperitæ.....ʒiv

M. S. A tablespoonful every two or three hours.

To relieve restlessness and insomnia, potass. bromide is often useful.

The paper elicited much discussion as follows:

Dr. G. C. Paoli said the author of the paper had omitted to mention a prominent English physician; Marshall Hall, who a few years ago in London, read a paper which excited the interest of the medical fraternity of England, because he had advanced new ideas against the old or orthodox views, then prevalent; one item to his theory was, that in cases of cholera there is irritability of the vagus nerve, and on this theory hydrate of chloral and nitrite of amyl was administered to patients having the disease in the East Indies, but that the treatment in Europe was different. The speaker had seen four cholera epidemics from 1834 to 1866. And since the latter year he has treated the disease when the unwelcome visitor made its appearance in Chicago.

Regarding the treatment, he would add but a few words, for every physician by this time is well posted in this respect. Of all the remedies the best he had known was sugar of lead combined with opium, to check the diarrhœa, in the proportion of two grains of the former to one-fourth grain of the latter given in pill as the urgency of the case demands. In the stage of collapse it was useless to administer internal remedies, because the stomach would not absorb them. The blood is inspissated and would not flow, and the best application externally is dry warmth, in the shape of heated blankets applied so as to environ the entire body and extremities. He did not believe in the bacillus or bacteria theory as a cause of the disease. No doubt they were present, but if so, they were innocent of the cause of the disease, for according to Darwin, perhaps we were once a bacillus—and surely we were innocent of intentionally causing cholera (laughter). Regarding an atom as being the cause—this he thinks is imaginary, for an atom is nothing that can be seen with the aid of a microscope. Dr. R. H. Engert asked the author of the paper what his percentage of recoveries were in the

cases which he had treated. Dr. John Bartlett gave his experience in treating 250 cases of cholera brought to a hospital in which he was attending physician. The per cent. of mortality was extraordinarily large. He expected he would be able to save one out of every two patients, but only one out of every six recovered, when they were brought to the hospital, they were in the blue stage, or semi-collapsed or partially cyanosed. Dr. J. H. Etheridge stated that he believed the nervous system would in the future be proven to have more to do with the ultimate pathology of cholera than bacilli, which he regarded as an illusionary aspect of the disease. Neurotic remedies should be given at first, and we will get at the gist of the trouble, which consists in the venous side being congested, and there is present vaso-motor spasm. To give opium, chloral, cannabis indicus and strychnia, will relax and tone this abdominal spasm of the nervous system, and aid the abdominal vessels to move correctly, perform their physiological action, and to prevent their pouring watery portions of the blood into the intestinal canal. Many years ago the theory was to start the bile, then give astringents. A few years ago Dr. Chapman, of London, in this disease, applied ice bags to the spine with very good success for diarrhœa, and to act on the abdominal vaso-motor nerves and aid them in the proper distribution of the blood. Medicines may also be given hypodermically. In the forties (1845–46) chloroform and ether were introduced as remedies on this theory of nerve spasm.

Regarding the bacillus that Dr. Koch has found in water tanks, and intestinal discharges of cholera patients, he is inclined to the same opinion as Dr. Paoli, so far as the cause of the disease is concerned, and further—the speaker regards them as a sort of "funny thing" in which one is amused by viewing them with a microscope. He illustrated his remarks by saying *that along* in the *sixties* Polli, of Milan, announced that he had discovered the true cause of quinsy. It being a germ or leucocyte, and in order to cure the tonsillitis, hyposulphite of soda should be administered to kill the germs. This theory of germs as a cause of quinsy being superlatively ridiculous, has long since been abandoned, and he, for one, is not yet convinced that bacillus is the cause of cholera.

Dr. R. E. Starkweather asked the author his views on the expediency of people retiring from the presence of the disease to remote or near distances? also what his observations have been as to frequency of cases of poisoning, where, for instance, a person having a grudge against a patient would try and make way with him by administering arsenic or strychnine to a sick person? He well remembered the year 1854, when the sentiment largely prevailed that people must retire from the disease if they wished to avoid getting it. He did not thing this idea was as universally prevalent now. He was an advocate of cholera sheds, and that sheds ought to be erected for other pestilential diseases, for the public authorities to take care of the victims, and instanced how yellow fever had thus been treated at Pensacola with better success than by any other method. In a public point of view, whether in the city or elsewhere, public authorities or health departments have a perfect legal right to do this, and could do so much better by having a number of well-trained nurses available than could be done by benevolent societies or organizations. For, in case of rice-water discharges, good nursing was the main thing to be relied upon.

Dr. D. O'Shea said he had been taught years ago that collapse in cholera was similar to shock from surgical injuries, and that the treatment in both cases should be similar. *Apropos* to the subject, he instanced the case of a tame rabbit which he was about to perform a painless physiological experiment upon, when the little animal became greatly alarmed at the surroundings. He remarked to those present that he believed the rabbit would die as a result of fright or shock, which it did in a few minutes, although it had, to all appearances, always been in good health; and as he did not remember reading anything on post-mortem appearances of the vessels of persons dying from fright or shock, he dissected the rabbit. No pathological appearance was present, except that the vena cava contained the blood of the body.

Dr. G. Newkirk asked if there was not some way by which the community could be educated, through the newspapers, so that the people could forestall these epidemics? Recently he had read in a Jewish newspaper that the Jews in France had not been afflicted with cholera. If this was true, he could not understand why they should escape its ravages, unless they had been instructed through Jewish papers to live better, or through their manner of dieting they had become insensible to the disease.

Dr. Scudder, in closing the debate, said first as to the per cent. of recoveries where the epidemic was severe, it was 20 or 30 per cent., or the percentage of deaths ranged from 80 to 90 per cent. where the epidemic was very severe. If the cases were seen early the fatality ranged from 40 to 50 per cent. In the sheds where cases were treated by fumes of sulphurous gas in the premises, nearly half the cases might be saved, whereas in one shed in the relief camp containing 20 cases, where exactly similar conditions were present where fumigation was omitted, 80 per cent. died.

In India the natives would not drink well-water. Their religion had much to do with the frequent visitations of cholera, for it taught them to drink only that which descended from heaven. The result was they drank surface water, or that which was stored in tanks near the temples of Lateran which they consider as sacred. In contrast to the natives of India were the Chinese and Japanese, because they drank well water and used the garbage and human offal to fructify the fields, and they were comparatively free from cholera. The Indians would not remove excrements and offal, neither did they cover it up, and when rain descended which amounted to 8 or 10 inches sometimes during a night, the water became polluted. The speaker did not see that any benefits would be derived by people running away from a district in which cholera was epidemic. General panic predisposes to the disease, and fright had much to do with its fatality. In India the poisoning of

persons afflicted with cholera by arsenic was frequent, and is largely undetected by the police. To warn the community, as one gentleman has alluded to, is an extensive topic. If the early known methods of checking it were resorted to, cholera would not become epidemic. The Indians are greatly prejudiced against European medicines, but (singularly enough), not so with European surgery, presumably because there are no native surgeons in India.

No European would travel without a bottle of camphor, and the English are always provided with a flask of brandy. The Europeans are well up in the use of preventive measures, and they would be sure also to be provided with chlorodyne, which is no longer a secret remedy.

LISTON H. MONTGOMERY, M.D., Sec'y.

Regular meeting August 18, 1884, D. A. K. Steele, M.D., President; and L. H. Montgomery, M.D., Secretary.

The first paper read was by Dr. P. C. Jensen, "On Cutaneous Therapeutics." After alluding to the histological and physiological relations of the skin and the internal secreting organs, including the mucous membranes, the writer discussed the question of cutaneous absorption, alluding to experiments in which limbs had been immersed in various solutions for weeks without any evidence of absorption. On the other hand, quoted Bichat as authority for saying that when the cutaneous surface of a limb is immersed in putrid gases, absorption takes place and the poison is subsequently eliminated by the bowels. He claimed that the rate and degree of absorption of any medicine depends largely upon its power of diffusion. Physiologically, he regarded the skin as a "colloid septum, on one side of which lie the blood-vessels containing an alkaline fluid, while an acid is on the other side; a condition most favorable for osmosis." He quoted Waller to show that alkaloids dissolved in chloroform were readily absorbed from the cutaneous surface, while the same substances dissolved in alcohol were taken up very slowly or not at all. He then gave systematically the objects and methods of local treatment in diseases of the skin, including a considerable number of formulæ, but which we must omit for want of space.

Dr. C.W. Earle read a short paper on the Management of the Summer Diseases of Children, of which we can give only the following conclusions:

CONCLUSIONS.

1. The most frequent infantile disease in the city during the summer months is entero-colitis.

2. Excluding causes of infantile mortality largely beyond our control, improper feeding is one of the chief causes of the great number of deaths among this class.

3. Mothers should nurse their children. In lieu of this, a wet nurse should be procured. If this is impossible a mixed diet is preferable, and, lastly, artificial diet must be resorted to.

4. Artificial foods containing considerable caseine are found to be a cause of indigestion and summer diseases.

5. In many cases cows' milk diluted with water does not seem to agree with children. Barley water or rice water as the diluent seems to make a more physiological food.

6. Condensed milk seems to agree with a considerable number of children, but, in many cases, a sufficient quantity is not used to nourish a child. Used in proper quantities and diluted with rice or barley water, it is without doubt one of the best artificial foods.

7. Cream, mutton broth and white of egg are valuable adjuvants to the dietary of infants.

8. Whatever the artificial food a child is having, the physician should examine frequently for evidences that it is a proper food as regards quality and quantity. The normal elevation of the fontanelles and increasing weight are among the conditions denoting a satisfactory and favorable nutrition.

The remainder of the evening was spent in discussing the subject suggested by the paper of Dr. Earle.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, August 22, 1884.

The cholera epidemic, while decreasing at Toulon and Marseilles, has extended over the greater part of the littoral of the Mediterranean and even to the north of Italy, in spite of the disinfecting and quarantine measures carried out by the latter both by sea and land, but it does not make much progress toward the north. People must be chary as to how they receive news from the lay papers, particularly with regard to the prevailing epidemic diseases, as, intentionally or unintentionally, they do a great deal of mischief by exaggerating or even falsifying the real state of things. Thus it has been more than once reported that cholera was within the walls of Paris, and on each occasion it was proved to be false. Almost every sudden death that now takes place is put down to cholera, and there is no doubt that there have been errors of diagnosis even in the cholera-stricken districts, and the mortuary list from that disease is thus often unnecessarily swelled. The malady, however, seems to be dying out, and even the discussions at the Paris Academy of Medicine are wearing out without any satisfactory solution being arrived at as to the true nature of the present epidemic. It is now pretty generally admitted that the disease is of the genuine Asiatic type, though slightly modified, but Dr. Fauvel will not be shaken in his opinion, and still maintains that the cholera is of the sporadic type. You are aware of Dr. Koch's theory of the etiology of cholera, which he considers is due to the presence of bacilli in the intestines, but Drs. Strauss and Roux are not of the same opinion, and they do not consider that the pathological data furnished by Dr. Koch are sufficiently conclusive as to the nature or origin of cholera, as the bacilli described by the German savant as being peculiar to the disease were

found in other pathological conditions, such as in the stools of dysenteric patients, in the vaginal mucus of women suffering from leucorrhœa, and they were once observed in the uterine secretion of a woman affected with epithelioma of the cervix uteri. They report that in the epidemic in Egypt, they observed that the blood of cholera patients contained excessively small thin particles, presenting the aspect of organisms. At Toulon, the same phenomena were observed in the course of their researches, though not always. They suppose these corpuscles to be due to a special alteration of hæmoglobin, a view also shared by Dr. Malassez, who examined specimens of blood obtained from cholera patients in Egypt and Toulon.

It will be recollected that in the month of May last M. Pasteur announced his discovery of an attenuated virus of rabies. He at the same time requested the Minister of Public Instruction to appoint a commission to report on his experiments, of which commission M. Bouley was appointed President. On the 8th inst. M. Bouley's report appeared in the *Journal Officiel*. After giving an account of the results of the different methods of experiment adopted by M. Pasteur, viz.: 1, Trephining for inoculating the brain; 2, injection into the blood; 3, the bite of the dog, M. Bouley stated that the method by inoculation seemed to be the most efficacious, but yet it remained to be ascertained how long the immunity against hydrophobia would last—whether its influence would be persistent, or whether it would be so transitory that it would be necessary to repeat the inoculations frequently, which would render them *nil* in practice. Moreover, it was asked whether the preventive action of inoculation with the attenuated virus would be sufficient to annul that of the virus inoculated by the bite of a mad dog—in fine, whether man may obtain any advantage from "this great and memorable discovery." In order to render the experiment by cerebral inoculation more intelligible, I may mention that the mode of procedure adopted by M. Pasteur was as follows: The matter for inoculation was taken from the pons varolii of a dog who died in the infirmary at Alfort from ordinary hydrophobia. A circular piece of bone five or six millimetres in diameter was removed with the trepan, and the inoculation was made with a syringe in which the extremity of the needles was bent almost to a right angle, so that the matter was inoculated immediately beneath the dura mater, and not into the cerebral substance. In this manner two dogs that had been submitted to prophylactic inoculation, and two which had not, as well as two unprotected rabbits, were inoculated. Subsequently two protected and two unprotected dogs were allowed to be bitten by a dog suffering from hydrophobia, and after the death of this dog, six other dogs, three protected and three unprotected, were inoculated.

On subsequent days, the experiments were repeated and varied. Altogether 42 dogs were used, of which 23 were protected by prophylactic inoculation, and 19 were unprotected. Of the 19 not protected, 14 died of hydrophobia; that is to say, of animals bitten, 3 out of 6 died; of 8 animals in whom intravenous inoculation was performed, 6 died, and all 5 inoculated through an aperture made in the cranium with a trepan; of the 23 dogs protected by prophylactic inoculation, not one died of hydrophobia, one died with diarrhœa; but inoculation showed that there was no reason to suppose that the animal had hydrophobia. M. Pasteur made the same statements before the International Medical Congress just held at Copenhagen, and M. Bouley, writing in the name of the commission, testified that, so far as the investigation had gone, it had been found that M. Pasteur had advanced no statement which was not rigorously exact.

At the banquet which closed the proceedings of the Congress at Copenhagen, M. Pasteur was placed to the right of the President, an honor due to his high and well won reputation.

Dr. Proust has been appointed Inspector General of the Sanitary Services of France, in the room of Dr. Fauvel, resigned.

Dr. Burg, whose name has been for nearly 30 years intimately connected with metallotherapy, particularly with reference to the influence of copper as a preventive of cholera, died last week in the 63d year of his age. A. B.

COPENHAGEN, Aug. 18, 1884.

The British Medical Association and their annual dinner, and the International Medical Congress—the two great medical meetings of the year—are closed, and much has been accomplished by the interchange of views by the physicians from all parts of the world. The meeting at Belfast was unusually good, and the address of Dr. Cuming, the President, was both interesting and eloquent. The Sections were well attended, especially the one of Therapeutics, which held its first session at this meeting.

Drs. Sayre, Daly and Shoemaker, of the American Medical Association, read papers before several of the Sections, and reflected much credit upon their profession at home. The annual dinner attracted much attention, the short addresses being unusually good. I was very much struck by the toast to our guests, and as it referred to a prominent member of the American Medical Association, I will give you, briefly, Dr. Redfern's remarks, and the reply:

In proposing "the guests" Dr. Redfern said: "This is a proud day for Belfast, for Ireland, and for you, Mr. President, very specially. We have been honored with the presence of many of the most distinguished members of our profession who have come from great distances to take part in this meeting of the British Medical Association. I have always thought there is no profession or calling in life which combines so many sources of pleasure and enjoyment as the medical profession. I know of no satisfaction comparable to that which results from the relief of human suffering, and the prevention of disease; but when yesterday morning I witnessed what many of you also witnessed,—a little child, the victim of spinal curvature in the hands of one of our guests, Prof. Sayre, and saw its anxious, suffering expression changed to one of ease, comfort, and enjoyment, I

had no longer a mere intellectual conviction of the value of medical aid, but a real conviction of the heart.

"We all know that however careful and skilful a nurse may be, there is a wide difference between her handling of any injured part, and that of the surgeon whose firm and steady grasp gives confidence, checks vibration and affords instant relief. And such was the effect of the steady and gentle hand of our guest who sits near me, when the countenance of the little sufferer proclaimed its relief without the utterance of a word, and testified that the master's hand was upon the rope. I propose to you the toast of 'Our Guests,' and ask you to couple with it the name of Prof. Sayre, of New York, and Dr. Pozzi, of Paris."

Dr. Sayre rose to reply to the toast proposed by Dr. Redfern, and said, "Mr. President and gentlemen, I feel greatly honored at being called on to respond to this toast, but after the remarks of Dr. Redfern, I scarce know what to say, for when the heart is full the tongue finds it difficult to express the thoughts which throng the brain. I myself feel personally grateful to the members of the British Medical Association for the many kindnesses they have shown me both now, and on the former occasions when it has been my good fortune to be with you, and when told this afternoon that I was expected to respond to the toast of 'Our Foreign Guests,' I felt that if anyone had cause to be grateful for a kind reception, it was myself. I object, however, to the term 'foreign.' We all proud and happy to be your guests, but we Americans are not 'foreigners,' we have simply come back as chickens to the shelter of the old hen's wings. But if we do seem to you as strangers, the fault is not on our side, but lies with you yourselves. We send you our best men year after year, but I am sorry to say we look in vain for a corresponding representation of your body at our yearly national gathering. You remind me very much of what I heard a man say in your streets the other day; speaking of reciprocity, he said, 'reciprocity, what is that?' 'Ah, don't yer know, Pat; why it's wan of the grandest virtues on airth, it's wan of the noblest sintiments can govern a man. Why, it's gittin all you can and giving nothin' back in return.' We have our own Medical Association, and when I was here in 1879 I was so struck with the mode of formation of your body, and the influence exercised by your journal that I studied the matter very carefully, and made the establishment of a similar journal the subject of my address as President in the following year, and I am happy to say that my suggestions have resulted in the formation of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, which is now in successful operation.

"We have, I must remind you, a way in our country of dividing the labor to be performed among different men, giving to each the part he is most fitted to perform. I represent the wheel-horse for hard work, but I see a short distance from me Dr. Shoemaker, of Philadelphia, who is for the leader of the team, all dash and fire, and I would recommend you all to his mercies."

Dr. John V. Shoemaker.

Mr. President and Gentlemen of the British Medical Association:—I deeply regret I cannot respond according to the prediction of our distinguished friend, Prof. Sayre. The American delegation, although very large, has been represented by the ex-President of the American Medical Association, Dr. Sayre, and no better and more eloquent member of our profession from America could have spoken to you upon this occasion. I see on all sides other representative men from my country. Here on my right is the venerable Dr. Moore, President of the American Surgical Society, and Dr. Didama, President of the New York State Medical Association; and on my left Dr. Daly, of the Medical Society of the State of Pennsylvania, gentlemen who could have addressed you much better than the youngest member of our delegation.

During the festivities this evening I have had commingled feeling of sadness and joy. Sadness to think that the great medical teacher and surgeon, the late Prof. Gross, of my country, who took so much pleasure in being present at your meetings and who always returned among us invigorated by his contact with you, who enthused the American physicians of the greatness of your organization, had but recently passed away while looking forward to meeting you all upon this occasion.

The feelings of joy have likewise been deeply experienced, that I should have the pleasure of being present at this meeting, and of seeing and hearing so many of the eminent English physicians whom we have heard so much about in America. The American physicians, and especially the delegates among you, are all most happy to see the great perfection that your organization has reached. It is to-day the most powerful society of medical men in the world, and your journal has well shown the large amount of scientific work you are doing every year. I might also add we are most happy to commend your journal, which is superior to any publication of the kind that comes to us from the four quarters of the globe. I speak not only as a physician, but as a journalist having opportunities of examining hundreds of medical periodicals, and I say to you that among them all the *British Medical Journal* has no equal. Your contributions, your editorials, and, in fact, the general make-up of your journal has no rival. As Dr. Sayre stated, and it was mainly through his suggestion, the American Medical Association have tried to follow your good example by also publishing our own journal. We are yet young in the work; the task is difficult, and we hope our efforts will be eventually successful. Come to America. I bid you all welcome on behalf of our delegates and the profession of my country. Let your numbers among our annual gatherings be larger. You will fill the older as well as the younger physicians with enthusiasm, and we may thus hope at least in time to approach to the great perfection of your journal and the British Medical Association.

The meeting of the Congress at Copenhagen was very large, the Germans, however, were greatly in the majority. The opening of the Congress on Sunday,

Aug. 10, in the presence of the King of Denmark and Greece and both royal families, was most impressive. The Danish people were most generous and hospitable toward all in attendance, especially to the large number of Americans. Very many of the foreign delegates present expect to visit America in 1887, at the next meeting, which already has the appearance of being very large.

DOMESTIC CORRESPONDENCE.

MEMBERSHIP IN THE NEBRASKA STATE MEDICAL SOCIETY.

ASHLAND, NEB., Sept. 3, 1884.

N. S. DAVIS, M.D., EDITOR.

Dear Doctor:—You will oblige me very much if you will insert these lines into your next issue of the JOURNAL, as well as the subjoint resolution, adopted by the Nebraska State Medical Society at its last session, May 14 and 15.

MINIMAL QUALIFICATIONS FOR MEMBERSHIP IN THE NEBRASKA STATE MEDICAL SOCIETY.

No applicant for membership in the Nebraska State Medical Society shall be received, who is not a graduate of a school the requirements of which embody the following conditions:

1. Creditable certificate of good moral character.

2. Diploma of graduation from a good literary and scientific college or high school; or, lacking this,

3. A thorough examination in the branches of a good English education, including mathematics, English composition and elementary physics or natural philosophy.

4. Branches of medical science to be included in the course of instruction: Anatomy, physiology, chemistry, materia medica and therapeutics, theory and practice of medicine, *pathology*, surgery, obstetrics, gynæcology, and *medical jurisprudence*.

5. The time occupied in the regular courses or sessions from which students are graduated shall not be less than five months, or twenty weeks.

6. Two full courses of lectures not within one and the same year of time shall be required for graduation with the degree of Doctor of Medicine.

7. Regular attendance during the entire lecture courses shall be required, allowance being made only for absences occasioned by the student's sickness, such absences not to exceed twenty per centum of the course.

8. Regular examinations or quizzes to be made by each lecturer or professor daily, or at least twice each week.

10. Each student shall have dissected during two courses.

11. Attendance during at least two terms of clinical hospital instruction shall be required.

12. Time of professional studies before graduation shall not be less than three full years, including the time spent with a preceptor, attendance upon lectures or at clinics and hospitals.

13. The college must show that it has a sufficient and competent corps of instructors and the necessary facilities for teaching, dissections, clinics, etc.

A. S. v. MANSFELDE, M.D.

Permanent Secretary Neb. State Medical Society, Ashland, Neb.

My reasons for thus troubling you for space are: The absence of a professorship on *General Pathology* in most all the annual catalogues of colleges finding their way to my table, especially those of Illinois, the State Board of Health of which has adopted the self-same resolutions for its guidance; in fact, those of the Nebraska State Medical Society are copied from them.

Now, two conclusions are self-evident. 1. Colleges which do not pay attention to these resolutions, *i. e.*, do not have 10 professorships as above indicated (and spicing in of General Pathology in the Chair of Principles and Practice of Medicine is not to be thought of, as far as the Nebraska State Medical Society is concerned) cannot expect their graduates to receive recognition, *a*, by the Illinois State Board of Health, and *b*, by the Nebraska State Medical Society.

2. The resolutions above referred to are, as so many other good resolutions, the pavement of the road to hades.

Speaking for the Nebraska State Medical Society and not as one of its officers, but as one of its members, who thinks himself capable to voice the society's feeling in this matter, I can avow that no graduate of any college which does not fulfill the above resolutions to the letter, need expect recognition as long as those resolutions are in force. Let students and teachers take notice of this!

But what about the Illinois Board of Health? We, out here in our young State, feel a little strange when we notice that the Illinois colleges pay no attention to the resolutions of their State Board, excepting the Chicago Medical College, perhaps. How is this?

An explanation would please the many readers of the Association's journal in Nebraska very much, and is respectfully solicited, with or without the aid of Dr. J. H. Rauch.

Very truly yours,

A. S. v. MANSFELDE.

PARASITES.

While physicians are diligently searching, in this latter day, for all sorts of micro-organisms, whether as tubercle bacilli, cholera bacilli, pneumonia micrococci, or what not, there is another form of creature demanding vigorous antiseptic treatment. Though not microscopic of body, it is infinitesimal of soul. We do not need to hunt for it with magnifying lenses, nor to immerse it in staining fluids. In its own natural color, that of unblushing effrontery, it daily makes itself apparent to the eye of the medical man, and, we may add, that of his collector. Do we need to describe this pestiferous vermin further? It is that most odious of all parasites, who feeds on the tender heart of the doctor.

Seriously, why should the medical man be compelled to suffer at the hands of "dead-beats" in a manner and to a degree that would be tolerated by

no other professional or business man? The medical profession does an enormous amount of charitable work, publicly and privately. Its services at dispensaries and hospitals are purely gratuitous, and in addition to all this there are few medical practitioners who do not attend clients in limited circumstances, either gratuitously or for an insignificant remuneration. Yet these public benefactors are daily imposed upon by worthless scamps, who employ every means possible of beating the doctor out of his justly-earned fees. It is proverbial that the doctor's bill is the last to be paid, even by those who have no intention of evading it ultimately. Furthermore, the medical man is expected to give credit to persons whom a merchant would never think of trusting. It is mean and uncourteous for him to present his bill under several months, and, if he insists on the payment of it, he is reviled. Now, why should these things be? The average practitioner of medicine, even if he do not enter the profession for the sole purpose of earning a livelihood (and if such be his motives he had better look elsewhere), is, nevertheless, compelled to support his family by his practice. If so, then, why should he not conduct it on strictly business principles, having due regard, of course, to professional ethics and those moral considerations that should actuate the honest, high-minded gentleman. Above all, why should he be forced to attend patients who have no intention of remunerating him? If people be really impecunious, let them go to the dispensaries, and if they are "dead-beats" let them be published as such. Can there not be a black list prepared, to which all physicians can have access? So soon as a doctor is defrauded of his fee by one of these parasites, he might publish the name and address in some local journal with which arrangements had been made to have space allotted to such a black list. We feel convinced that if physicians would form some such plan for mutual protection, the evil of which we complain would be greatly lessened. This is but a suggestion, and we trust some philanthropic mind will concoct an effective parasiticide of the kind required.

R. H. B.

NECROLOGY.

Tyler, Grafton, M.D., of Georgetown, D. C., was born in Prince George Co., Md., Nov. 21, 1811; died at his residence, corner Washington and Gay Sts., Aug. 26, 1884. He is descended from a family of Tylers who came from England and settled in Maryland in 1660.

The doctor was the second son of Grafton and Ann H. (Plummer) Tyler, and was born on the ancestral estate. The late Prof. Samuel Tyler, of the Law Department of Columbia College, was an older brother. Dr. John Tyler, of Frederick, Maryland, was an uncle of his father, a physician of note in his day; was a fellow student of the celebrated Abernethy in London and Edinburgh. Dr. Wm. B. Tyler was his son, and fully sustained the reputation of his father in Western Maryland. Dr. Grafton Tyler received a good classical education at Rev. James Carnochan and Rev. James McVean's school in Georgetown before the former became President of Princeton College, N. J.

Dr. Tyler began the study of medicine with Dr. Richard Duckett, a physician of ability and large practice, who lived on the adjoining plantation to Dr. Tyler's father.

Dr. Tyler attended lectures at the University of Maryland, and became an office student during the winters with Prof. Samuel Baker, Sr., of Baltimore.

Dr. Tyler received his medical degree from the University of Maryland in 1833. On leaving college, his preceptor was so attached to his pupil that he at once took him into partnership, though each retained their separate residence. Early in his professional life he had a predilection in favor of surgery, and did some good work in that department. But he gradually gave that up, and devoted himself almost exclusively to general family practice and consultations with brother physicians.

The labor of a large country practice told so seriously upon his health that, by the advice of physicians, he gave up professional business, which was beyond his physical powers to discharge. In 1843, he removed to his late residence in Georgetown, where the labor would be less than in his former field of duty. He speedily acquired a good practice, and shortly after settling here he was selected as Physician to Georgetown College, a position in which he gave eminent satisfaction, and retained to the time of his death.

In 1846, Dr. Tyler was elected to the Chair of Pathology and Practice in the Medical Department of Columbia University, and a few years later of Clinical Medicine in the Washington Infirmary. His duties to a large clientage induced him to resign these positions in 1859, but he was elected to and retained the position of Emeritus Professor. He was appointed a member of the first Board of Visitors of the Government Hospital for the Insane, but after six years' faithful service resigned.

The active temperament of the doctor and his popularity with the people of Georgetown led him to be elected to the Council of Corporation of Georgetown, and was made President of the Board.

He was also for years President of the Board of Health of Georgetown. Dr. Tyler early identified himself with medical organizations, becoming a member of the Medico-Chirurgical Faculty of Maryland in 1833. He was a member of the Medical Society of the District of Columbia since 1846, and served in all its offices, including that of president in 1872. He was also a member of the Medical Association of the District since 1848, and has held most of its offices. He became a member of the American Medical Association in 1848 and attended meetings in 1852 and 1855, when he was elected one of the vice-presidents. He also attended in 1858-'66-'68-'70-'72, and 1884.

He was one of the consulting physicians of Providence Hospital and president of its medical board from its opening in 1863. He was one of the original incorporators and a director of the Children's

Hospital since its organization. Dr. Tyler was a ready writer, a fluent and eloquent public speaker, and was selected by the physicians on several occasions to deliver public addresses, some of which have been published. He also found time to contribute valuable articles to medical journals. An article in 1841, contributed to the *Baltimore Medical and Surgical Journal*, on an obstetric subject attracted a good deal of attention. An address on "Medicine as a Science and an Art," in 1851, delivered in the hall of the Smithsonian Institution, was also an able paper. This was printed in pamphlet form. Dr. Tyler has been through life an exemplary member of the Protestant Episcopal Church. In January, 1836, he was married to Mary M., daughter of Walter Bowie, Esq., of Prince George's Co., Md.

He had eight children, five sons and three daughters. One of his sons, Bowie Tyler, is a physician in full practice in Georgetown. Dr. Tyler was a man of polished manners and great kindness of heart, and was extensively employed in times past by our leading citizens as well as by statesmen sojourning in Washington city. Dr. Tyler will be greatly missed by numerous patrons and strongly attached friends, both in Washington and Georgetown. He leaves but six physicians living who were in practice in the District when he settled here, namely, Drs. Lindsly, Burrows, Liebermann, Howard, May and Ritchey.

The Medical Society of the District of Columbia held a special meeting on the evening of the 27th inst., and passed a series of resolutions expressive of their regard for the memory of Dr. Tyler, and resolved to attend his funeral in a body.

Doctor Tyler's remains will be interred on Friday 29th inst., in Oak Hill Cemetery, by the side of his wife, who died some years ago. J. M. T.

MISCELLANEOUS.

A QUEER SIBERIAN DISEASE.—The person affected seems compelled to imitate anything he hears or sees, and an interesting account is given of a steward who was reduced to a state of perfect misery by his inability to avoid imitating everything he heard and saw. One day the captain of the steamer, running up to him, suddenly clapping his hands at the same time, accidentally slipped and fell hard on the deck. Without having been touched the steward instantly clapped his hands and shouted; then, in helpless imitation, he, too, fell as hard, and almost precisely in the same manner and position as the captain. This disease has been met with in Java, where it is known as "Lata." In the case of a female servant who had the same irresistible tendency to imitate her mistress, the latter, one day at dessert, wishing to exhibit this peculiarity, and catching the woman's eye, suddenly reached across the table, and seizing a large French plum, made pretense to swallow it whole. The woman rushed at the dish and put a plum in her mouth, and after severe choking and semi-asphyxia, succeeded in swallowing it; but her mistress never tried the experiment again.—*London Medical Record.*

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.
Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM AUGUST 31, 1884, TO SEPTEMBER 5, 1884.

Byrne, Charles C., Major and Surgeon. Relieved from duty in Department of California and to report in person to the Com'd'g General Dept. of the Platte for assignment to duty. (S. O. 207, A. G. O., Sept. 3, 1884.)

Town, F. L., Major and Surgeon. Relieved from duty in Dept. of the Columbia and to report in person to the Com'd'g General Dept. of Texas for assignment to duty. (S. O. 107, C. S., A. G. O.) Granted leave of absence for twenty-five days. S. O. 127, Dept. of the Columbia, Aug. 25, 1884

Havard, Valery, Capt. and Asst.-Surgeon. Relieved from duty in Dept. of Texas and to report in person to the Com'd'g General Dept. of the East for assignment to duty. (S. O. 207, C. S., A. G. O.)

Hall, Wm. R., Capt. and Asst.-Surgeon. Relieved from duty in Dept. of Texas, and to report in person on Oct. 1, 1884, to the Superintendent general recruiting service in New York City, for duty at David's Island, N. Y., relieving Asst.-Surgeon M. E. Taylor, from duty at that station. (S. O. 207, C. S., A. G. O.)

Gibson, R. J., First-Lieut. and Asst.-Surgeon. Relieved from duty in Dept of the Missouri, and ordered to Dept. of California for duty. (S. O. 202, A. G. O., Aug. 28, 1884.)

Hopkins, Wm. E., First-Lieut. and Asst.-Surgeon. The leave of absence granted him in S. O. 67, Aug. 7, 1884, Dept. of Arizona, is extended one month. (S. O. 204, A. G. O., Aug. 30, 1884.)

Dietz, Wm. D., First-Lieut. and Asst.-Surgeon. Relieved from duty at the Mil. Academy, West Point, N. Y., and ordered to the Dept of the Missouri for duty. (S. O. 202 A. G. O., Aug. 28, 1884.)

LIST OF OFFICIAL CHANGES IN THE MEDICAL CORPS OF THE NAVY, FOR THE WEEK ENDING SEPTEMBER 6, 1884.

P. A. Surgeon P. M. Rixey, from special duty at Washington, D. C, September 8, and to the "Lancaster," European squadron.

Surgeon A. S. Oberly, from the "Richmond," August 30, and wait orders.

P. A. Surgeon S. H. Dickson, from Asiatic squadron July 29; sick leave August 30, 1884.

THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. III. CHICAGO, SEPTEMBER 20, 1884. NO. 12.

ORIGINAL ARTICLES.

PUERPERAL PYÆMIA.

BY WM. H. MYERS, M.D., FORT WAYNE, IND.

[Read before the Indiana State Medical Society, June 11, 1884.]

It is within ten or fifteen years only that much has been done to entitle medicine to a place among the exact sciences. Up to this period we knew disease only by groups of effects; of their causes we had no certain knowledge; we dealt only with the symptoms.

As the methods of research adopted became stricter and more systematic, we have been enabled to look forward with much certainty and to offer speedy solutions of many problems hitherto deemed inscrutable, and the men of science in medicine anticipate with much hope the possibility of triumph, not merely over individual cases, but over whole genera of disease.

I have, therefore, thought I could not choose a more opportune theme than pyæmia, with its closely allied diseases, and to refer briefly to the light cast by recent discoveries upon its nature and treatment in puerperal cases.

"Pyæmia," in the language of Déspine, "is purulent absorption." As septic absorption may be confounded at the bedside with the pyæmic process, we are at once compelled to define the distinctive characteristics of each.

To Burdon-Sanderson we are indebted for the following clear definition of pyæmia:

"It is a process which has a beginning and a termination of a definite kind, a center of origin, lines of diffusion, and secondary results. It is developed and goes on and on to its fatal end."

Septicæmia has no necessary connection with any local process. It is, therefore, not developed, but is a constitutional disorder of limited duration, produced by the entrance into the blood-stream of a certain quality of septic material.

You will apprehend from the foregoing, that I do not use the terms pyæmia and septicæmia as convertible. I believe that a sharp line of definition between these two conditions exists.

You cannot have pyæmia without pus, and you cannot have pus without inflammation, as pus is one of the products of inflammatory action, and whether its absorption be from an abcess, an open wound or a solution of continuity of the uterine surface or its appendages, it results in the pyæmic processes.

With Jonathan Hutchinson, pyæmia, I hold, is produced by an inflammation of the patient's own tissues.

But I imagine some may controvert the opinions here expressed, by referring to Waller, Cohnheim, Virchow and others, who state that pus is nothing but a white blood globule, strayed outside of a capillary vessel, and that no property or power can with certainty be ascribed to the white blood-cell but which is certainly predicable of the pus-cell.

As anatomical elements they offer no points of distinction. Their chemistry is the same. To both is accorded the property of growth and multiplication by subdivision. Neither of them contribute to the formation of any higher structure. Neither of them eventuate in anything different from cells; as Beale would say, "masses of germinal matter, but as such live, die and disintegrate." Whilst the presence of pus may be considered as the approximate cause of the pyæmic processes, yet it alone, as such, cannot produce all of the symptoms present in pyæmia. The exciting cause of pyæmia has been a matter of dispute for hundreds of years, but that the antiseptic treatment has almost driven pyæmia from the hospital wards is a matter of fact, and that its disappearance, coincident with the introduction of Listerism in surgery and obstetrics, leads us to hope that a solution of this hitherto unexplained question as to its origin is not far distant, and that probably the statement of Burdon-Sanderson, that "pyæmia originates by the introduction into the living tissues and eventually into the blood, of a poison which is itself a product of inflammation"; and that the metastatic abcesses are characterized by the presence of bacteria, may be regarded as the solution.

A predisposing cause in disease may be defined as a cause which, whilst not producing disease itself, renders more effective the exciting cause; and under this head we must include the environment of the patient, shock, loss of blood and depression of the vital powers. For instance, if you take a large series of cases of patients who have lost great quantities of blood, or are debilitated, or greatly depressed, many of them will be the victims of pyæmia. Historic mention of this is made by military surgeons. It was so in the Crimea and in the French campaign. In our own Rebellion the Confederate soldiers suffered more after their defeats. In the Franco-Prussian war pyæmia was less prevalent in the German army, they

being the victors, than in the French, they being the vanquished.

Let me now direct your attention to puerperal pyæmia, and the evidence that any morally as well as physically depressing cause is discovered to coöperate in the same way. Dr. Newman, in discussing puerperal pyæmia, uses the following language in speaking of the predisposing causes above referred to: "These do unquestionably seem to me to play a material part, at all events, in predisposing the system to the virulent development of these poisons however they happen to be introduced."

Hicks says: "There is another point which cannot be left out of consideration, viz.: that violent mental emotions also are followed by symptoms precisely similar to those which followed zymotic influences or the existence of putrid discharges."

The puerperal condition itself may be considered as a predisposing cause, and is so referred to by the ablest writers.

If we look at what a lying-in woman is, we see there a peculiar constitution ready to receive poison and ready for those poisons to ferment, and so on to a disastrous issue.

Richardson in speaking of this condition of the woman after delivery says, that she is in a nervous condition supplying from her own potential energy the movements of the fœtus. Then there are cases where there has been some local injury, exposure of cellular tissue, the rupture or exposure of a vein, the formation of a modified secretion, the absorption of that and death from what Mr. Hutchinson correctly calls poisoning immediately from the patient herself.

Grailly Hewitt thus graphically describes the condition of a woman immediately after parturition, as a predisposing cause of pyæmia: "The woman has a large bleeding for instance, at the time of childbirth; the contractile power of the uterus fails to a certain extent, the expulsion of the debris ceases, and it is taken up into the circulation, and I explain in this way those cases in which the scarlet fever poison and other fever poisons apparently produce disease. They destroy the vitality of the patient to a certain extent; they take away the safeguard; they abolish the contraction of the uterus and they produce paralysis of the organ for the time being and the pyæmic process immediately takes possession of the uterine sinuses."

Let me here direct your attention to the fact that these cases are often auto-genetic; that the woman is herself the factor, and subsequently the recipient of the poison generated "*in utero*" which is received into the lymphatics, the veins, the peritonæum, and into the body generally. In this morbid uterine condition, usually the result of hæmorrhage, followed by a loss of vitality and contractile power, I would grasp the soft, spongy, uncontracted uterus with my hands, compress it, thereby expelling clots; afterwards wash out putrid or putrescent discharges of the womb and vagina, by means of Higgins' syringe, Condy's Fluid and warm water with carbolic acid, until the lochia became quite inodorous; this operation I would repeat every two hours if the temperature should reach 102° Fah.

Now let us pause here a moment. For in every professional life in medicine there are times and events well calculated to *cause* us to pause and sometimes review the line of treatment suggested by even the most advanced therapeutists and clinicians; and we are often compelled to express strong doubts amid disappointments. These mental states are thrust upon us, and we reconsider carefully the factors, thus profoundly impressing us, either by disaster or unexpected recovery.

Professor A. S. Ranney, speaking upon this subject with its attendant disappointments, says, "It brings up recollections of frustrated hopes, of untimely graves, of surgical skill carefully exercised, but of no avail."

Professor Krakowizer also says:

"It is bad enough that the surgeon, the obstetrician, find inherent difficulties in the treatment of wounds and in the management of abnormal labor; that they cannot help sometimes making mistakes, in choosing the time for operations and in performing them, but it is discouraging to have to take an element into calculation in performing one's professional duty, that neither lies in the nature of the case nor can be warded off by any degree of scientific acumen or skill."

These reflections of my own and of the authorities just quoted, have been profoundly impressed upon my mind by the following case:

On the 24th day of December, 1883, Mrs. E., æt. 30, was one of the passengers in a railway car, as it was on a crossing a rapidly advancing locomotive struck the car with great violence; overturning it. She was thrown against the seat and sides of the coach; upon my arrival, I found Mrs. E. laboring under shock, mental and physical, the latter the result of numerous cuts about the head, and abdominal bruises. At the time of the accident she was *enciente* six months; she was conveyed to her home, a distance of one mile, and properly placed in bed, where she remained for nearly two weeks, during which time she had a slight uterine hæmorrhage for the first few days, and during the remaining time was strongly threatened with premature labor, but this was averted by quiet and strict horizontality. During the remaining period of her term, she always complained of pain over the right lumbar region. Her confinement occurred March 13, 1884.

Nothing unusual occurred in the first and second stages of labor, only they were more protracted than in her two previous labors, in which I attended her. The protraction seemed to be owing to the failure of nervous power. In the third, the stage of expulsion of the placenta, (and this itself may be divided into three different periods, first, detachment from the internal surface of the uterus; second, expulsion into the vagina, and third, protrusion externally), after waiting the usual time, and finding that the diminution of the womb did not occur as is usual in this stage, I was apprehensive that the placenta was adherent to the surface of the uterus.

During the interim usually allowed, between the

birth of the child and the placental delivery—fifteen or twenty minutes—a severe hæmorrhage ensued, and this determined my prompt interference to aid in the expulsion of the placenta, first by Crede's method; failing in this and fearing the further loss of blood, I proceeded to deliver by following up the cord, and found my apprehensions verified, that the placenta was adherent. It was firmly attached at its lower edge to the uterine wall.

Pressing firmly with my left hand externally over the fundus uteri, I carried the fingers of my right hand between the placenta and the internal surface of the uterus, and thus destroyed the adhesions and liberated the placenta without force and with the greatest possible care. Its expulsion now followed. No laceration of the cervix or perinæum was detected, and I do not believe any existed. After being properly put in bed, fluid extract of ergot was administered in large doses every hour, to prevent hæmorrhage by promoting uterine contractions. I was informed the next morning that several clots had been expelled during the night, and that she had remained free from any urinary distress. I entertained grave fears for my patient, fearing that the pyæmic process would be set up in that portion of the placental site where the adhesions had been broken up, and also that the nervous prostration from previous shock and the loss of blood occurring in the third stage of her labor, would act as powerful predisposing causes. Under these impressions, I strictly observed every antiseptic precaution, from the first of her labor.

A healthy male child was born on the 13th, as previously stated. She progressed favorably until the 21st (eight days), when at 1 P. M. a messenger informed me that she had a most violent rigor, with profuse perspiration. Being at the time ill, I was unable to respond to the call, and Dr. H. V. Sweringen was called, and reported that the temperature was 106°, that five hours afterward the temperature was 101°. Now followed in succession, usually twice in twenty-four hours, rigors, profuse perspiration, sharp elevated temperature, varying from 105° to 100°, during the remaining days of her illness. It was now believed by us to be a well-pronounced case of pyæmia, and we adopted the treatment suggested by our best clinicians. That this was a case of auto-genetic pyæmia was evident from the history of the case, using the term auto-genetic "self," "I generate," and applying it in diseased conditions in the same sense as originally used by Owen in anatomy, elements developed from distinct centres. In biology, development refers to an unfolding, and refers to the organic changes which occur in a living germ.

I have already expressed my own belief that the presence of pus alone did not establish the pyæmic process, but that there was something special in the state of the patient's health which led to the disastrous result; the previous shock which she sustained, and from which she had not recovered at the time of her accouchement, the loss of blood at that time, and the adherent placenta were the fatal factors that invited blood-poisoning.

Cheyne in his Antiseptic Surgery teaches us that the following conclusions were forced upon him by the results of numerous experiments; that the blood and tissues of healthy living animals do not contain organisms or their spores, and have no inherent tendency to undergo fermentation.

LIFE IS THE GREAT ANTISEPTIC!

Preserve it, restore healthy functions, control by rest and position, the nervous vascular and muscular action, and the repair of injuries proceeds like healthy nutrition. Life and putrefaction are not correlative but antagonistic, and in proportion as we utilize and economize the attributes of life we will find ourselves independent of those changes which are inherent to decomposing organic matter. Lister suggests that the tissues of a healthy living body have a power of counteracting the energies of bacteria in their vicinity and preventing their development. Specific diseases are like specific forms of animal or vegetable life; they can be produced only by specific preëxisting germs. There is no such thing as spontaneous generation of the entities which generate disease any more than there is of the innumerable forms of animal life which make their appearance wherever a material suitable for their development is exposed to the atmosphere. We know that the air is full of floating living particles, ready to spring into activity whenever they may light upon a congenial soil. In such numbers do they exist that present but the proper soil, and the appropriate germ inevitably finds its way to it. Each particular malady is due then to the invasion of the system by some microscopic organism, which multiplying itself within the living body, gives rise to the phenomena which physicians describe as the disease. This is the teaching of McLagan in his Germ Theory of Disease. This is true also of certain diseased conditions, as in the case of wounds. It is now believed that when they are other than normal that it is owing to the invasion from without of living organisms, and that the constitutional disturbances previously regarded as the natural consequence of every severe wound or surgical operation were really dependent on the introduction of air-carried germs, of living organisms into them, and that in their absence, healing by the first intention is certain to occur. But we are told by those who doubt Listerism, that if there be any truth in the theory, these air-born germs should settle and multiply themselves in every cut or solution of continuity and that the danger from the most trifling incisions should be as great as it is from the most serious. To this we reply, by presenting a most important fact in connection with the micro-organisms to which these germs give rise without which the higher forms of animals which they infest must speedily succumb before their attacks. If their invasion is undertaken in insufficient force, or upon an animal in robust health, they are refused a foothold and expelled, or if they have secured a lodgment in the tissues they are laid hold of and digested by them; this fact has been repeatedly observed and demonstrated by Cameron, Lister, Billroth and Cheyne. They have also proved by experiment that an undisturbed healthy coagulum in the vicinity of living tissues will resist the development of putrefactive bacteria even when present in a highly

concentrated form. In illustration let us apply these statements or facts to surgical procedures and they will explain the success which has attended important operations without antiseptic precautions, notably does this apply to ovariotomy.

In 1874, I removed an ovarian tumor from a patient æt. 36 years. The tumor weighed 45 pounds. From my notes of the case, I read that the rebound to health was rapid and complete. This may be attributed partially to the preparatory treatment and the complete isolation of the patient with absolute rest. No antiseptic precautions were used except cleanliness. In this case I now believe the recovery was largely due to the high vital energy of the peritoneal surface. We all know how rapidly a wound in the peritonæum may heal or the rapid peopling of the lymph in the wound with vigorous new living elements; for the formation of lymph proceeds more rapidly in proportion as the wounded tissues are in a more vigorous condition. Hence, the power of organizing blood-clot or lymph to resist the development of putrefactive bacteria. This high vital endowment of the peritonæum is of wide application in abdominal surgery, and explains the remarkable success of Lawson Tait — three deaths in his last 50 cases without the use of carbolic acid — and the same remark may be applied to Professor Keith, of Edinburgh.

Primary union or union by the first intention, can then only occur in a healthy wound, and the phenomenon of union in this manner is explained by the resisting power of the tissues preventing the development of putrefactive bacteria.

Dr. Antonine Magnin, in his work on Bacteria— page 443 — in chapter on "Bacteria in Surgical Lesions," says: "The blood and tissues of healthy persons do not, under ordinary circumstances, contain bacterial organisms," and that "putrefactive decomposition of organic fluids is due to bacterial organisms." This doctrine is also sustained by Watson Cheyne in the following language: "The blood and tissues when in a healthy state have the power, of themselves, of destroying organisms when these are introduced into the body."

In discussing the destroying action of the healthy living tissues on bacteria he particularly refers to perfect mechanical rest, and by attention to the general health, stating when the tissues are in perfect health and the clot is undisturbed, and when kept in such a state they resist the development of organisms without any antiseptic appliance, and the wounds heal frequently by first intention. He asks the question, "How is it that union by the first intention can occur when during the operation organisms enter the wound, both as dust from the air, also from the water in which the sponges are soaked, when there is also between the cut surfaces a layer of blood or lymph; how is it that blood does not putrefy between the cut surfaces of a wound?" He answers these questions by quoting the following forcible arguments from Lister, who says: "The fact is, that a thin layer of blood, although containing numerous causes of putrefaction, does not, as a rule, putrefy if it be placed between two healthy living cut surfaces." Or, to state the fact in another way, "these organisms, which are certainly present, cannot develop in a thin layer of blood or lymph placed between two healthy living freshly cut surfaces;" or, again, "the living tissues when in a healthy state have the power of preventing the development of organisms in their immediate vicinity.

Watson Cheyne, in his valuable work on Antiseptic Surgery, again says that "he has demonstrated that if into a *healthy* living animal a small quantity of ordinary bacterial fluid be injected, the bacteria lose their vitality and disappear; also, that organisms cannot be found in the living healthy body, unless a considerable amount of their products be introduced along with them." On the other hand, he has demonstrated how, if the animal were out of health, organisms could live in the blood and tissues much more easily. The same is the case in union by the first intention. If the part be of high vital power, and in a healthy state, and if there be an extremely small quantity of blood between the cut surfaces, union by first intention will almost certainly occur. If the part become inflamed, or if the patient be in a weak state of health, union by first intention, without aseptic means, becomes a matter of great uncertainty.

Cheyne states that Traube and Gscheilden have found that blood taken with precaution from a healthy living rabbit, into which twenty-four or forty-eight hours previously 1½ c. cm. of bacterial fluid had been injected, could be kept for months without undergoing putrefaction. He adds: "The facts that the blood and tissues of healthy living animals do not contain living organisms, show sufficiently that they have the power of destroying them, for otherwise there are frequent opportunities for the entrance of these into the circulation."

That one of the factors predisposing to pyæmia in Mrs. E.'s case was the adherent placenta, mental perturbation, hæmorrhage with shock, we can no longer doubt, from the light thrown upon bacterial development as not occurring in healthy living tissue, and we pass to the consideration of the adherent placenta in her case. Why was it adherent? That this adhesion is unusual, rarely met with by the most experienced in our profession, will be admitted; but as it did occur, to what is it attributable? Drs. Rhamsbotham, Burns, Davis, Ingleby and Hamilton attribute it to the presence of lymph thrown out as a product of inflammatory action, and that the inflammation is usually excited by falls, blows or injury received during gestation, and advance in support of this theory that in the lower classes it is much more frequent than in the higher circles, this being due to their greater liability to accident.

Is it possible to remove entirely the adherent portions of the placenta?

So strongly specialized is the fatality following this adhesion that I unhesitatingly answer the question in the negative. The exceptions being a mere trace in medical literature.

Sir J. Y. Simpson in speaking of the adherent placenta says: "In some instances the organic union between them is so firm and the corresponding sur-

face of the uterus and placenta are so intimately blended together that the uterine contractions are altogether inadequate to break up the morbid organic connection existing between them, and occasionally it has been found impossible to disunite them completely from one another by any manual efforts during life or even by dissection after death."

Playfair, speaking of the treatment of adherent placenta, says: "The removal is always a delicate and anxious operation, which, however carefully performed, must of necessity expose the patient to the risk of injury to the uterine structures, and of leaving behind portions of placental tissues." He also says that "the retained portions may decompose, give rise to fœtid discharge and septic infection," and that, "such cases must be treated by antiseptic intra-uterine injections."

Meadows advises "that if the adhesion be so intimate that considerable force is necessary for separating it, it is far better to leave a portion adherent, and in such a case the vagina, and even the uterus should be washed out frequently with disinfecting fluids, such as Condy's solution."

Hamilton, in his Outlines, says of the adherent placenta: "Of all the cases of retention this is the most difficult and dangerous; the case is intricate and perplexing."

Denman, in speaking of the placental adhesion to the uterine wall says: "A perfect separation will be extremely difficult and sometimes impossible."

Similar views are entertained by Chailly, Burns, Davis, and Rodney Glisson. We may conclude this part of the subject by quoting David D. Davis, in his Principle and Practice of Midwifery, vol. ii, p. 1062: "In the treatment of this form of retention of the placenta, the proper, and indeed the only safe practice to be adopted, is to withdraw by careful detachment all of the placenta that is found not morbidly adherent to the uterine parietes, leaving the diseased remainder to such kindly offices of nature as she may be able to exert for their expulsion."

The above treatment is strongly sustained by the late Professor Hugh L. Hodge, of the University of Pennsylvania in his Principles and Practice of Obstetrics. He says: "Should the adhesions be very close, the accoucheur should content himself with lacerating the placenta, and bringing away as much of the mass as possible."

The rigor occurred on the eighth day after her delivery, and was due undoubtedly to pus, or its constituents, being poured into the blood. At this period according to Wenheimer, the microscopical constituents of the lochia are no longer serous, but consist of pus corpuscles, and they are the paramount constituent. It was at this period that pyæmia supervened, owing to the presence of pus, as a natural result of inflammatory action, rendered infective by the vital depression of the patient. Had her condition been otherwise, in accordance with the principle discovered by Lister, and which is now generally admitted, viz.: that the tissues of a healthy living body have a power of counteracting the energies of bacteria in their vicinity and preventing their development —a favorable prognosis might have been predicted.

From the birth of the child to the eighth day, a compress, firm and snug-fitting binder was kept constantly applied, and ergot was administered to insure uterine contraction, and to prevent absorption of purulent products; strict quiet and cleanliness were enjoined, and the nurse instructed to use vaginal injections of carbolized water twice or three times a day. Quinine was given with proper food.

On the 21st of March, (the eighth day after her delivery) a severe rigor occurred, followed by a sharp rise of temperature. The fever took an acuminated form, for after the temperature reached the highest peak, it began immediately to fall again. This sudden turning back of temperature after reaching the maximal point, and rapid downfall of temperature, recurred several times during the twenty-four hours and became the most marked feature in the case. Thomas thus alludes to the fluctuations in temperature.

"In the morning the temperature would be found at 102°, in the evening of the same day 106°; the following morning it would be 98°, and toward evening of the same day 106° and 107°. The thermometric evidence is the most valuable we have, in every respect it is the most serviceable, and certainly wonderful." He thus truly describes the condition of our patient when he says: "A patient may look perfectly well in the morning, and in the evening have a temperature of 107° or 108°, which is a fact of itself to indicate to us that she is suffering from some very great disease."

These fluctuations in temperature were accompanied by a frequent pulse, 140, and hurried respiration, 44, great muscular debility, but without delirium or mental disturbance. These phenomena recurred each day until the 28th when the disease terminated fatally.

GENERAL TREATMENT.

Large doses of quinine, ten or fifteen grs. every six hours, beef essence and stimulants in large quantities, iodoform internally, as recommended by Professor Maggioli of Rome, frequent ablutions and speedy removal of all sources of infection, complete ventilation and the free use of carbolic acid.

SPECIAL TREATMENT.

As all possible sources of the poison should be removed, and where these consist of decomposing retained substances within the uterus or vaginal canal, it would be natural to suppose that intra-uterine injections would suggest themselves, and brilliant results are reported as having followed this special line of treatment. Renewal of the infection is thereby often rendered impossible, and if the case be one complicated by retention of clots or portions of an adherent placenta, this treatment is said to be especially serviceable.

Schonlein directs that in all cases where a recently-delivered woman has an offensive discharge from the uterus or an increase of temperature, he at once directs intra-uterine injections consisting of carbolized water. He publishes a table of 1,200 cases, for the purpose of demonstrating the great benefits derived therefrom.

Richter administered intra-uterine injections to

3,000 lying-in women without a single accident. If there be premature cessation of the lochia, with constitutional disturbance, a purulent discharge, fœtid, and with increase of temperature, or if the uterus contain fragments of placenta, clots, or is imperfectly contracted, intra-uterine injections should invariably be used.

Dr. W. Gilwylis says: "If after labor a chill be followed by a rapid rise of temperature, I would wash out the uterine cavity with a solution of carbolic acid, one to twenty."

Dr. Grailly Hewitt uses carbolic acid by intra-uterine injections in all cases of pyæmia, and insists upon the necessity of drainage of the vagina by alteration of position.

Prof. Tarnier, of Paris, as a germicide uses bi-chloride of mercury solution, 1 to 1,000. He uses intra-uterine injections in pathological conditions only.

You are all, no doubt, perfectly familiar with the discussion before the New York Academy of Medicine, and with positions notably taken by Professors Barker and Thomas. It is not deemed necessary to allude to them specifically, only that Thomas is a strong advocate for carbolic acid, to be used freely and frequently in intra-uterine injections, while Barker deems these precautions as unnecessary, and sometimes positively injurious.

In looking over the literature of this subject I have failed to find any reasons given for the frequent intra-uterine injections of carbolic acid. It is true, we are informed the acid is a germicide, that it will destroy the organisms; and it is to this part of the subject that I will invite your closest attention for a few moments.

Microbe is a word for various minute organisms found in the fluids or tissues of the body in pyæmia and other diseased conditions.

They consist of cells of different sizes and shapes, which multiply themselves with enormous rapidity. Let it be distinctly enunciated that the doctrine of spontaneous generation is dead, and that it is established beyond dispute that the most putrescible bodies exposed to contact with the atmospheric air will remain unputrefied if preserved from contact with microbes or germs. Also, it is proven that the most extraordinary differences exist between the tenacity of life exhibited by the developed microbes and the spores or forms from which they spring.

Submit the microbes to boiling heat and they are killed; dry them and they die at once; expose them to oxygen and they perish; carbolic acid will paralyze them; expose any of them to oxygen under high pressure and they die.

Antiseptic agents kill them.

But the spores which they produce and from which they spring, are almost indestructible. Dryness only enables them to resist destruction; time is no object, for their dormant vitality is maintained for years. They have survived the boiling process for eight hours. Their immediate destruction is by the flame of the spirit lamp only, and yet we believe and teach that germs are readily destroyed by mild solutions of carbolic acid, bi-chloride of mercury, chloride of zinc, and permanganate of potass., and that by the effective application of the agents above mentioned, we can protect our patients against the mischief they work. If this be true, and no one will deny the statement who is well qualified to pronounce judgment, it seems to me to be a most important point to be carefully considered in treatment of cases in medicine, surgery and obstetrics.

Now, let us refer to the experiments of Prof. Tyndall, and see if they do not offer the solution to the phenomena referred to. He took infusions, infected with spores derived from old hay, on which many hours of continuous boiling had no effect, but found that by boiling for a single minute at intervals of a few hours, he could, with an aggregate of five minutes' boiling, sterilize the most refractory infusion. And now follows the explanation: The spores in an infusion are in different conditions as to species, age, humidity, dessication, exposure to light and heat.

They will require different periods for germination; while they remain simple spores, they resist boiling because they are endued with the most robust vitality. But allow them to germinate, and deal with each successive crop as it is springing into life, and your victory is complete and of the easiest. It is in this manner that germicides accomplish all that is claimed for them. They kill the developed microbe, and prevent the development of others. They will kill them off in detail, as they spring into life or are developing into maturity.

You will now apprehend why I believe in the antiseptic intra-uterine injections in those pathological lesions tending to develop the pyæmic process; by the *repeated* application of carbolized solutions we destroy the microbes as they germinate, and hence it is now easy to comprehend the success claimed so recently by Prof. Thomas, by this method, and the reason why the almost unceasing intra-uterine injections are necessary to arrest the pyæmic process.

In the above I have presumed the connection of cause and effect as existing between microbes and the diseases with which they are found associated.

Of the methods by which it can be proved that they really stand to each other in this relation, I have only to refer to the proofs offered by Burdon-Sanderson, Koch, Pasteur, Toussaint.

APPENDIX.

After the above paper was concluded the following letter was addressed to H. V. Sweringen, M.D., and we here publish his reply:

H. V. SWERINGEN, M.D.:

My dear Doctor:—I would indeed thank you for a note containing a statement of the impressions entertained by you while Mrs. Ellison's case was under your observation; during the interim I was ill and unable to attend. Faithfully,

W. H. MYERS.

Fort Wayne, Ind., July, 1884.

FORT WAYNE, Ind., 1884.

W. H. MYERS, M.D. *My dear Doctor:*—Your note requesting a statement of the case of Mrs. Elli-

son, during the time she was under my care, has been received, and I now cheerfully comply therewith.

On the day following her delivery and upon which you were taken ill, I was requested to visit her merely for the purpose of relieving her bladder.

After the lapse of seven days, at about 1:30 o'clock on the following Thursday morning, the 20th, I was called the second time to see her, because of a violent chill with which she had been attacked soon after midnight. Her temperature at this visit was 106° F., but in a very short time, during a copious perspiration, declined to about 100 or 101.

Agreeable to the most approved treatment in these cases, regarding her case as a typical one of puerperal pyæmia, resort was now had to intra-uterine injections of carbolized warm water and to the internal administration of quinine, ten grain doses, at intervals of four hours. For a time she seemed greatly improved and apparently approaching convalescence. Suddenly, without any premonition, she was taken with another chill, which was accompanied with the same phenomena already referred to. And so chill after chill followed each other in irregular succession, each attended with a rapid rise and decline of the temperature with profuse sweating. The pulse after the third rigor had attained an acceleration of 140, and evidences of great exhaustion were now beginning to be manifest.

Upon making inquiry of the husband I learned of the difficulty you had in extracting the placenta. I concluded that you must have had one of those rare cases of true adherent placenta, in which it is utterly impossible to effect its entire separation, the union being so firm. I then remarked to Mr. Ellison that the cause of this adhesion must certainly have been due to the injury she sustained in the accident which befell her a few months prior, for reasons which you will readily understand, and I believe this accident rendered her general system illy prepared to resist the influence which the difficult extraction of the placenta would exert in consequence of the septic dangers it would occasion.

Very truly yours,

H. V. Sweringen.

ADDRESS IN OBSTETRICS AND DISEASES OF WOMEN.

BY THAD. A. REAMY, M.D., OF CINCINNATI, OHIO, CHAIRMAN OF THE SECTION.

[Read in General Session of the American Medical Association, May, 1884.]

Fellow Members:—Custom, as well as law, prescribes as one of the duties of the Chairman of a Section that he present in his annual address a digest of the progress made in that special department during the past year.

Compliance with the letter of this law is now unnecessary, and would, therefore, be unprofitable.

Medical journals, general and special, both home and foreign, conducted with great ability and exhibiting much energy and zeal in collecting and publishing the latest advances in all departments, are promptly placed by rapid mail facilities upon the table of every reading member of the profession. Moreover, the editorial criticisms of new doctrines, discoveries, methods or operations, are generally from the pens of those who, by education and special training, have superior abilities for such work. It is, therefore, deemed appropriate, on the present occasion, to refer you for an "Annual Report on Obstetrics and Diseases of Women" to these more fertile and instructive sources.

Craving your indulgence, I beg to offer, in lieu of such an address,

NOTES OF TWO HUNDRED AND THIRTY-ONE CASES OF OPERATION FOR LACERATION OF THE CERVIX UTERI.

The date of my first operation for lacerated cervix, "Emmet's operation," was February 28, 1874. I have now made the operation upon 231 patients. Not a single death has occurred. In six cases the operation was followed by perimetritis, parametritis or peritonitis. In but three of these cases, however, were these symptoms sufficiently severe to cause material delay in complete recovery. In one case, included in these three, there was perimetritis, paramatritis, and general peritonitis. The patient was confined to her bed for three months. During the attack (acute stage) the peritoneal cavity was aspirated twice. On one occasion seventeen ounces of serum were removed. This woman finally recovered her health perfectly. Considerable fixedness of the uterus remained for a long time; but now, at the expiration of two and a half years, uterine mobility is about normal, menstruation normal and painless, whereas prior to the operation she suffered both from menorrhagia and dysmenorrhœa. She was the mother of two children, the youngest being 4 years old at the date of operation. No abortions had occurred. Sterility continues. The above case was one of bilateral laceration, extending on each side to the vaginal junction, the torn lips being widely separated and eroded. I attribute the inflammatory complications following the operation in this case to the undue degree to which the uterus was dragged down in order to give unobstructed access. On this point I shall have something further to say before the close of this paper.

Complete recovery occurred in the other two cases, but convalescence was slow.

Of these 231 cases, in 170 the laceration was bilateral, in 38 unilateral. Of these latter, 23 were on the left side and 15 on the right. Sixteen cases were stellate, in two of which there were four distinct lacerations. In five cases there was laceration of the posterior lip only, in two, of the anterior lip only. In 80 cases the laceration was extensive; in 15 of these 80 extending to the cervico-vaginal junction on both sides. In 22 of the bilateral cases the laceration extended to the cervico-vaginal junction on one side only. In three cases the rent extended to the internal os. In one of these, the vaginal wall was

likewise extensively lacerated; the peritoneal cavity had probably been opened, followed by protracted cellulitis. This patient remained a helpless invalid during the three years intervening between the accident and the date of my operation. On one side it required 12 sutures to close the cervical and vaginal rent. Perfect success followed the operation, the patient being restored to robust health within six months.

In 167 cases there was perineal laceration to an extent that left deformity, either at the vaginal orifice or more externally. In 15 cases the anal sphincter was damaged. In 7 cases the recto-vaginal septum was opened up. In 26 cases I operated upon the cervix and perinæum at the same sitting. In 5 cases of this series I curetted the uterus with my blunt wire curette at the same sitting, this of course, being the primary of the three procedures. In neither of these five cases did a single untoward symptom arise. Results were perfect.

In 50 cases I operated upon the perinæum after recovery from the cervical operation. Each of the cases above mentioned in which the operation involved the recto-vaginal septum is included in this series of fifty subsequent operations.

It is perhaps as well to state here that I never hesitate to curette the uterus in a case demanding it, at the time of operating upon the cervix. Nor do I hesitate to use the curette in a case requiring it immediately preceding a perineorrhaphy, pretty extensive clinical experience having convinced me that neither of these operations adds materially to the danger of curetting. Indeed, I am inclined to the opinion that in certain cases where the conjoined conditions demanding the two operations exist, the depletion of the cervix in trachelorrhaphy presents an element of safety against inflammatory processes which may follow curetting. Three violent cases of traumatic peritonitis have occurred within my personal experience from the use of the curette, unconnected with other operations. In not a single case of trachelorrhaphy performed by me did secondary hæmorrhage occur.

In every case where hæmorrhage was troublesome during the operation, it was readily controlled by the stream of hot water which it is my custom to have flow upon the field of the operation during its progress, with but three exceptions; in which it being necessary to denude the torn surfaces deeply, twigs of the circular branch of the uterine artery being cut, compression with torsion forceps was invoked. Contrary to most operators I have not, since my fourth operation, employed a tourniquet, ligature, or any similar method to control hæmorrhage during the operation. As early as 1875, in my clinical lectures delivered in the amphitheater of the Good Samaritan Hospital, and repeated each year since, I emphasized the importance of allowing, in most cases, free bleeding from the denuded surfaces. Firstly (*a*) because it softens the tissues so as to allow more perfect coaptation of the lips to be united; and (*b*) because of this softening, which is immediate, the tissues are easily penetrated by the needles in carrying the sutures. Secondly, and more important, this depletion not only greatly promotes the return of the indurated cervical tissue to its normal condition, but is an immense factor in again starting the processes of involution of the uterus which had been arrested by the laceration and its consequences. The restoration of form in closing the divided lips of a torn cervix, especially where the deformity is great, is important. The removal of such pathological conditions as may threaten the development of cancer, and no one can deny that this is in a certain proportion of instances within the scope of the operation, may be even more important; but the influence of trachelorrhaphy, properly done, upon subinvolution cannot be over-estimated. Thorough denudation, cutting out all cicatricial tissue, and allowing free depletion, embrace the essential points in the operation so far as its influence upon involution is concerned.

So powerful is the influence of hot water in controlling hæmorrhage from small vessels, when it can be poured directly upon the bleeding surface, that I have frequently found it expedient to withhold this agent for a short time after the denudation is completed before introducing the sutures, in order that sufficient bleeding may occur to accomplish the ends above indicated.

The character of the labor which had resulted in laceration could not be determined with any degree of certainty, except in comparatively few instances, since information upon this point could be obtained only from the patients themselves. In 40 cases delivery was accomplished by the forceps; in 2 by craniotomy; in 2 by turning. Two of the cases where rupture involved the recto-vaginal septum, were forceps deliveries.

It is my belief that early rupture of the membranes, and attempts at forcible dilatation of the cervix by the finger or fingers of the accoucheur or midwife, and the improper use of ergot, are far more fruitful sources of laceration to the cervix than the obstetric forceps.

In the city of Cincinnati 70 per centum of all deliveries are attended by midwives, who, with very few exceptions, are ignorant and unskilful. The sins above enumerated lie closely at their doors. But it cannot be denied that these errors of practice are sometimes perpetrated by well educated physicians. Unquestionably, many cases of laceration occur unavoidably, no matter what care and skill may characterize the accoucheur's services. It should be the duty, therefore, of the gynæcologist in all cases where patients are referred or otherwise come into his hands for operation, to protect the physician who may have been present at the confinement against censure, which may be unjust. All the more because the laity, when informed that a laceration of either cervix or perinæum has occurred, at once assume a want of skill or care in the obstetric service. The emphatic statement of the unavoidableness of these accidents should by the gynæcologist be voluntary. So great is the danger that professional reputation may unjustly suffer from this source of censure, that in an editorial in a recent issue of one of the ablest medical journals of the country, this was used as an argument against the adoption of Emmet's operation except in extreme cases.

Mr. Jonathan Hutchinson points out that in many cases the first stage of cancer is that of inflammation; that "all inflammations are infective." "Inflammatory processes may pass by almost imperceptible gradation into malignancy." The acceptance and appreciation of the above facts would lead in many cases to the more vigorous treatment of localized inflammations; more especially when situated in structures known from clinical experience to be specially prone to cancer, as the uterine cervix, mammæ, etc. These considerations alone, even if they were not supported by others, urge with great force upon our attention the importance of Emmet's operation. It is the concurrent testimony of almost every distinguished American gynæcologist who has spoken on the subject, with many abroad, including Briesky and Schroeder, that the fretting of exposed tissue consequent upon ununited laceration of the cervix is a prolific source of danger in developing cancer.

Emmet, Thomas, Goodell, Mundé and others have cited cases verifying this danger. In my own practice quite a number of cases of cancer of the cervix have been observed where the neoplasm developed either in the cicatricial tissue resulting from laceration or in the apex of the cleft.

In my opinion, the influence of the accident under discussion in producing cancer has never been fully apprehended by any one. Emmet, the distinguished author of the operation under consideration, at first spoke out unequivocally. Now, however, he alleges that he does not make trachelorrhaphy once where formerly he did it ten times; and it is easy to read between the lines of what he has recently written, that he does not now believe the evils arising from laceration not operated on, nearly so universal as he formerly believed them to be. He seems greatly to deplore the extent to which the operation is being done, and as I think, without just cause.

In further considering the relations between this injury and Emmet's operation to cancer, it may not be amiss to call attention to the fact so thoroughly recognized by clinicians, that cancer of the cervix is found almost exclusively in women who have either given birth to one or more children or been the subjects of abortion. So far as the cervix is concerned, cancer is a disease of childbearing women, not of virgins. In more than 300 cases of cancer of the cervix of which I have notes but one occurred in a virgin, and but ten in married women in whose cases I could obtain no evidence of abortion or childbearing. Can any one deny that such facts point strongly to the local origin of cancer in these cases at least? And can it be doubted that injuries inflicted upon the cervix during parturition have a direct or remote connection with this origin? Would it not be wise to repair these injuries when they are appreciable by whatever method it may be done most speedily and certainly? It is claimed that Emmet's operation should be limited to cases where ectropion has occurred, or where a cicatricial plug imprisons or presses upon branches of sentient nerves, causing painful reflex symptoms. I have heard it repeatedly stated that no matter how extensive the laceration, the operation is not warranted unless these symptoms are present. These are in my judgment errors. Any laceration which has healed without its surfaces being in contact must have healed without complete union, although its extent may have been much lessened by granulation. But in all such cases there is more or less cicatricial tissue in the field of repair. (This does not apply to the many cases where anterior and posterior laceration occurs, and the parts not being separated complete union has occurred without the aid of the surgeon). Cicatricial tissue in such locality, even should it not produce reflex symptoms, should be removed thoroughly and the parts closed so as to obtain union by first intention, in which cicatricial tissue is never found. If the rent be small, then the operation is small, especially if it be done before chronic inflammation of the cervix has occurred, as a result. The denudation need not be extensive or deep. In many cases an anæsthetic need not be administered, as the parts are not very sensitive. The uterus need not be drawn down, so there can be but little danger of cellulitis or peritonitis resulting. Why not do the operation in these slighter cases, then, as the simplest and safest method of cure? thus avoiding results which might arise in the future and prove more serious?

It is impossible for me to give exact data as to the influence of the operation on sterility, as many of these cases soon after recovery, passed out of my knowledge. And as the last 50 cases were operated on within the past thirteen months, sufficient time has not elapsed to test the question. I know, however, of 15 cases where conception has occurred, and delivery took place at term. I have no doubt that as many more have proven fruitful. Of these I attended in labor 6, one of these within the past month. In no case did relaceration occur, labor being normal except in two cases. In these dilatation of the cervix was slow, but finally complete, in neither case was it protracted. I have learned from medical gentlemen who attended several other of my cases that labor was normal. I believe that the operation properly done, favors fertility, and often cures sterility.

In but 2 of my cases did union fail. In one of these I foolishly used catgut ligature. In the other failure was due to the sutures not being sufficiently tightened. In each case subsequent operation was successful.

I may have made the operation in cases not demanding it, but from my point of view, I do not think so. In 8 or 10 cases reflex nervous symptoms, which I hoped to banish by the operation, remained, but in most cases the good effects were obvious; in some cases the cures were almost marvellous.

My method of operating, after much thought, and some experience I think worthy of consideration, as it must, as I believe, have some advantages over methods generally adopted.

1. I use nothing to draw the uterus down with but the single vulsella, with which I seize but one lip, the one to be denuded first, at a time.

2. I draw the uterus down as little as possible. This caution should be the more scrupulously observed, if any cellulitis remains about the base of the broad ligaments or elsewhere.

3. I outline the denudation with a sharp knife, and then cut the tissue included in the line with a sharp scissors. This prevents the rolling of tissue at the borders.

4. Allow bleeding freely or not, as the condition of the tissue of the cervix and the involution or subinvolution of the uterus may require.

5. Use a nearly half-circle needle with very sharp point, armed with Chinese silk.

This shaped needle can be drawn through the second lip and withdrawn very much more easily than a straight needle, or one curved only near the point. This advantage is all the more apparent when the uterus is not drawn down, as then the vaginal wall makes the withdrawal of the usual shaped needle difficult. I employ a plain needle-holder without any catch or slide, but strong.

Silk is preferred to wire because it can be tied much more quickly, and the tension more easily adjusted. Then there are no ends to jag the vaginal walls.

Another great advantage of the silk over the wire is in the fact that the sutures may be left in 15 to 30 days, without danger of cutting out—quite an important matter in a case when trachelorrhaphy and perineorrhaphy are done at the same sitting. The perinæum may perfectly heal and be strong before removing cervical sutures. My custom is to allow the ends of the sutures to remain sufficiently long to reach nearly to the vaginal opening. This facilitates their removal.

6. Wash out the cervical canal at the close of the operation with a recurrent flow syringe to remove any blood that may have found its way there during closure of the sutures.

Have nurse wash out the vagina with warm carbolized water, within an hour after the operation is completed. The vagina is not syringed again until the sixth day, then daily until the patient is dismissed.

Cleanliness is the only antisepsis employed.

Authorities have been but little quoted or referred to, as it was my purpose in this paper simply to give notes of my own cases.

NOTE.—According to my observations, about one out of every nine women suffers laceration in first confinement.

ESSAY ON DESPERATE SURGERY IN ITS RELATIONS TO WOMEN; THE PROPER PLACE FOR IT; WHO SHOULD, AND WHO SHOULD NOT ATTEMPT IT.

BY R. S. SUTTON, M.D., PITTSBURGH, PA.

[Read in the Section on Obstetrics and Gynæcology of the American Medical Association, May, 1884.]

MR. PRESIDENT AND GENTLEMEN:

By desperate surgery I mean operations that endanger the life of the patient.

As they relate to women, such operations are largely intra-abdominal.

That the opening of the cavity of the peritonæum is desperately dangerous, will be denied alone by persons ignorant of American statistics tabulating the results of this kind of surgical interference.

That this subject is worthy of intelligent and intense investigation, is claimed by all who honor the profession of medicine, desire to ameliorate the condition of suffering humanity, and wish to prolong life.

The presentation of a tabulated statement of the intra-abdominal surgical operations performed more or less frequently, will serve to bring the subject clearly before our minds. These are:

1, Normal ovariotomy, Battey's operation.

2, Removal of the ovaries and tubes, Hegar-Tait operation.

3, Ovariotomy for cystic ovaries, McDowel's operation.

4, Enucleation per vaginam of the entire uterus, Langenbeck's operation.

5, Supra-vaginal hysterectomy, Clay's operation.

6, Enterotomy, Ramdohr's operation.

7, Gastrotomy, Sedilott's operation.

8, Resection of the pylorus, Billroth's operation.

9, Removal of the gall bladder, Langenbeck's operation.

10, Cholecystotomy, Marion Sim's operation.

11, Hepatotomy for hydatids, Lawson Tait's operation.

12, Nephrectotomy, Simon's operation.

13, Nephrotomy.

14, Radical operations for hernia.

15, Laparotomy for pelvic abscess, Lawson Tait's operation.

16, Laparotomy for splenic abscess.

17, Laparotomy for hepatic abscess.

18, Laparotomy for chronic peritonitis, Lawson Tait's operation.

19, Laparotomy for acute peritonitis, Lawson Tait's operation.

20, Laparotomy for hydatids of peritonæum.

21, Laparotomy for extra uterine fœtation, Tait's method.

22, Supra-vaginal hysterectomy in pregnancy, Porro's operation.

In this enumeration there are twenty-two operations within the peritoneal sac, and it is probable that this number will be increased in the near future.

These, with laparotomy for diagnostic purposes, are included in my definition of desperate surgery in relation to women.

May I proceed a step further and characterize this class of surgical operations as a special field of work?

May I affirm that abdominal surgery constitutes a great and growing specialty?

May I predict the gradual limitation of that now ascendant specialty, gynæcology, caused by the special surgeon usurping its abdominal prerogatives?

Is not this the form we see outlined in the shadow of coming events?

It is an admitted fact that when certain organs within the cavity of the peritonæum become diseased, the surgeon's knife is the only available medicament.

Truly the successful gynæcologist is the one that handles the implements of the surgeon skilfully, and

he who does not possess this aptitude, is, in this department, a failure.

For illustration:

The cervix is no longer ulcerated; it is lacerated, and a surgeon only can treat it successfully.

Yes, gentlemen, I am bold to predict that, within a few years, the specialty of abdominal surgery will be established, and limit the place and prerogatives of that other specialty, out of which it is rapidly growing.

This new specialty is already challenging the attention of intelligence; and if it secure the might of mind, courage of heart, and dexterity of hand its work requires, it will command universal admiration.

In our country, this branch of surgery is in a most unsatisfactory condition.

From this sweeping assertion, I except the city of Boston, Mass., in so far as ovariotomy is concerned.

And because of the many favorable opportunities with foreign operators of great success, that have been enjoyed by me, I feel that a special obligation to seek its advancement by public discussion, rests upon me.

This is my purpose in this paper.

The second topic proposed is the inquiry: What constitutes a proper place for this kind of surgical operations?

Is it the general hospital with its pus-soaked wards and atmosphere laden with all sorts of deadly germs?

Is it the modern city residence with its malodorous environment, defective sewerage, and coterie of curious relatives and acquaintances, that refuse to be kept at a distance by quarantine regulations?

Is it the cottage by the roadside, with its freedom from noxious gases, and bathed with clover scented air, delightful and health-giving?

Shall we select the hermitage on the secluded mountain slope, with its widely varying temperature, or the lodge in some vast wilderness of forest, with its continuity of shade and moist coolness?

Viewed from these points, these rural retreats may each be denominated an elysium; but the indispensable nurse is not found there, and the doctor is a league away.

With the nurse present and the physician within prompt call, any one of these places would satisfy the most scrupulous surgeon; but the absence of these elements of success, renders them forbidding.

And even with these disadvantages, men of experience give them a decided preference over the general hospital.

We will be materially aided in replying to this inquiry, if we enumerate the elements of safety required in every house, in which abdominal section is contemplated.

These are:

a. A large airy apartment properly prepared.

b. Freedom from the presence of all zymotic germs.

c. An edifice exposed to the sun, and surrounded with a capacious air space.

d. Perfect sewerage.

e. If in a city, a house located in a quiet neighborhood.

f. A population that will respect the quarantine of the patient for at least a week after the operation.

These desirable conditions should be under the control of a conscientious nurse, and the surgeon should be near his patient, so that everything may be under his constant supervision.

Gentlemen, I firmly believe, that these provisions of safety are best secured in a private hospital, and that when all engaged in this line of work so decide and act, our statistics, now so deplorably bad, will greatly improve, and possibly may attain those of Dr. Keith and Mr. Tait, who perform their operations largely in private hospitals.

The ground for my belief that the private hospital is, as a rule, the best place for abdominal surgical operations, is the fact that the statistics of this class of surgery show, that by far the best results have been obtained in private and special hospitals.

Our third topic relates to the persons performing these operations.

Who ought, and who ought not to undertake them?

The general practitioner, who daily passes from scarlet fever to diphtheritic or erysipelatous cases, has no warrant for opening the abdominal cavity.

On the other hand, the accumulated testimony relating to infection from these sources, render it probable that he who does this, will destroy life and make himself liable to criminal prosecution.

The general surgeon, at a time when he is attending foul wounds, or engaged in any pathological work, is, in the light of knowledge gathered from experience, criminally careless, if he open the abdomen.

The obstetrician attending cases of puerperal peritonitis, or other zymotic disease, has no right to imperil a woman's life by exposing her vital organs to noxious infection.

The gynæcologist in attendance upon a patient with a fetid cancer of the uterus, would probably be a minister of death to a woman, whose abdomen he would presume to open.

Men laboring among infectious diseases should know that their clothing becomes a magazine filled with deadly missiles, and their surgical case a quiver stocked with poisonous arrows, and if they attempt these operations, the result will be almost certain failure.

The history of the past and the best judgment of the present, unite in declaring that a specialist for abdominal surgery is the man who should attempt this dangerous work.

He ought to be excluded from general practice and other surgery, avoid all causes of infection, and when accidentally exposed, should sacrifice his clothing, and employ the best germicides thoroughly and repeatedly before resuming his work.

He should shun all sorts of zymotic diseases as scrupulously as did the Jewish High Priest bodies of the dead.

I am aware, gentlemen, that this doctrine has the appearance of puritanism, but it should be borne in mind that the successful abdominal surgeon is a literal purist.

It may be objected that it debars the young practitioner from exercising his gifts, as it is not practicable for him to abstain from general practice for the

sake of the few abdominal sections that he may have opportunity to make.

But let me address a word of advice to these worthy men.

If you cannot afford to abjure the rewards of other kinds of professional service, to stand by the operating tables of specialists until you have acquired the knowledge and skill to make you a specialist, the interests of suffering human beings, of the honor of the profession, and of your own financial condition, require you to send cases needing such surgery to the men who have made the sacrifice and endured the toil of acquisition that fits them for this kind of work.

Emergencies may occur when a specialist is not within reach. Then it is wise to select the best man, put him in the best condition possible as to cleanliness and assistance, and commit the case to his care.

Above all others, this specialty is intolerant of mistakes and mismanagement.

The laws of nature forbid that men who treat zymotic diseases in city practice, and dress sloughing wounds so frequent in railroad and factory cases, should obtain good results, and write a high rate of recoveries in abdominal surgery.

Your speaker is unable to name a single man who has made a fair reputation, who has not made it in a specialty.

If there be a general surgeon in this country who can show a record of 83 recoveries in 100 cases of ovariotomy, let him speak out and challenge the truth of this assertion.

Both Dr. Keith and Mr. Tait have shown 98 per cent. of recoveries.

It is admitted that Dr. Keith has done some general practice; not much, however; and his opinion is in favor of the secluded surgeon.

Mr. Tait is a thorough specialist.

My own experience, in a private hospital, is limited; but I am able to say, that all my operations performed in my private hospital since it was opened, last September, have recovered, and some of these are graver than those I constantly lost previous to obtaining this essential condition of success.

There, during the past winter with its unfavorable weather, I have made seven abdominal sections, viz.: one supra-vaginal hysterectomy for deformed uterus; one supra-vaginal hysterectomy for fibroid tumors; one double ovariotomy for cystic tumors, and a supra-vaginal hysterectomy on the same patient, and four ovariotomies. All these have made good recoveries.

Previous to opening my hospital, my results were bad; now they are very encouraging.

Mr. Tait in his early operations, without a private hospital, was very unsuccessful, and his present excellent results are due to seclusive hospital privileges, and abstaining from general practice.

Mr. Tait's colleague, Dr. Savage, of Birmingham, who, in his last published 85 cases of abdominal section, lost but four patients, said to me, when speaking of Mr. Tait's success, "He is not mixed up with diseases in general practice."

Said Dr. Keith to me, referring to abdominal surgery, "When you begin to do these operations, all other practice will leave you."

Speaking of those who succeeded and those who failed in ovariotomy, he said to me, "Before I began to operate, ovariotomy ruined a number of surgeons in Edinburgh."

Why did it not ruin Keith?

It was because he bought a flat of desirable rooms on the top of a well located building, and there fixed his private hospital, despite threats of prosecution.

Sir Spencer Wells owes his success to the seclusion of the Samaritan hospital, and Martin of Berlin, in his private hospital, has had a line of more than fifty operations without a death.

And Mr. Thornton reports seventy (70) operations without a single fatal result at the Samaritan hospital.

I challenge the production of a single operator outside of a private or special hospital, who can show better than eighty-two recoveries in one hundred cases.

On the other hand, I ask you to observe that every man who can produce better results, and is able to exhibit a better record, has either a private hospital, or similar exclusive facilities.

I conclude this paper with the assertion that to be successful abdominal surgeons, we must keep ourselves free from the infection of zymotic diseases and foul wounds, and give scrupulous attention to every detail of cleanliness in ourselves, assistants, nurses, sponges, instruments, patient and her environs.

If men are not prepared to do all this, they have no warrant for opening the abdomen of any woman, except in a case of emergency, where they alone can make an effort to save imperiled life.

DISCUSSION.

Dr. McLean, of Michigan.

Mr. Chairman:—This subject of ovariotomy is one to which I have given a great deal of attention. I have not only performed it a considerable number of times myself, but I have seen distinguished operators perform it. I have watched the whole subject from its very inception. I was a student in Edinburgh at the time that Keith performed his first operation before that Faculty. I have watched with very great interest and with very great care the progress of professional opinion with regard to ovariotomy, and I have watched the career of the great ovariotomists very closely indeed.

While, no doubt, there is theoretically a great deal of truth in the doctrines laid down in the paper which we have just listened to, there is (and I am sure very many of you will agree with me) a great deal that is utterly impracticable and discouraging. It may be all very well in a small country like Great Britain, where a few hours of railway travel will carry the passenger to Edinburgh, to London, to Manchester, or to Liverpool, and where there is, besides that, a great deal of concentrated wealth,—it may be all very well to lay down the doctrine as to who shall perform ovariotomy, and where it shall be done. But in this vast and comparatively poor country—a country of "magnificent distances"—it is impossible to place all our patients under these favorable circumstances. We have to do the best we can with them. I ask you, Where did ovariotomy spring from? Not

from London. It did really spring from Edinburgh, not practically but theoretically, from Dr. Bell, of that city. But where was it performed? In the back-woods of Kentucky. And at this very day there are many cases where patients have but one of two things to do—to go down to death, or to submit to the operator who has the courage and the heart to operate upon them. Now, I say, for any person who happens to live in the city, and happens to have the means to establish a private hospital, who happens to be in a railroad centre, to come forward here and lay down the doctrine to this great nation of surgeons and practitioners, "You shall not perform ovariotomy; let your patients die or send them to me!" such a proposition is, to say the least, presumptuous! (Applause.)

I do not live in a great railway centre. I live in Detroit. I am a general practitioner, a general surgeon and railroad surgeon. Since the first of October last, I have performed five cases of ovariotomy—one at the University of Ann Arbor, in the presence of the class; one in a "cottage by the roadside," and three other cases. And my five patients have recovered. (Applause.) Now, am I, in view of these theoretical doctrines, to abandon my privilege of performing ovariotomy? It would take a great deal more eloquence and much more high-sounding sermons to convince me of that doctrine!

What was Dr. Keith's statement to me? That he went directly from two cases of diphtheria to perform ovariotomy! He complained to me of private practice having left him. He said, "Ovariotomy is a very poor-paying business." He told me what he had made since the 1st of January, and it was very small in proportion. Dr. Keith is a general candidate for practice of all kinds, and when I was in his office he examined a case of suppurating ear. This was in the month of August, 1880.

Now, I do not wish to enter upon any discussion here, to make any hard feeling of any kind whatever. But I do want to protest, with all the force of which I am capable, against any such centralization, any such discouraging, and any such monopolizing doctrine as the one we have listened to! (Applause.) For my part, it shall have no weight with me. I shall go on with my general practice, my general surgery, and my railroad surgery, with my best antiseptic precautions, and I shall encourage my students to perform ovariotomy when they are able to do it. I say, no man has a right to say I shall not perform ovariotomy, any more than that I shall not sing a song or make a speech! It is a matter for a man's own conscience to decide for him. (Applause.)

Dr. Englemann, of Missouri.

Mr. Chairman:—One of the difficulties we meet with in the practice of medicine and surgery, is to blend the theory and the practice. I am certain that what Dr. Sutton has told us is theoretically most true. I have seen it for years in my own city. I mention it, because I believe the gentleman of whom I now speak, (and you will appreciate the force of the statement), Dr. Hodgkin—now dead—was acknowledged, outside of St. Louis also, as an able surgeon. Almost every case of ovariotomy in his practice died. He was a successful surgeon and, I think, a skilful surgeon. His cases of ovariotomy died, one after another. I think he had but two or three successful cases. I have always attributed it to the fact that he practiced surgery and medicine, and had a very large practice and a practice involving many difficult cases. He was consulted far and wide, and had serious cases of old wounds and difficult amputations, besides other cases that would bring infection. His cases of ovariotomy were failures.

I believe that the law which Dr. Sutton wishes to lay down is, that absolute cleanliness is necessary. It is not carbolic acid or listerine. It is CLEANLINESS, that can be had in a village as well as in the city. But it is less difficult if we have the facilities of a hospital, such as he mentions. We are better situated. We have the opportunities. The surgeon himself keeps free from contamination, from diphtheria and typhoid fevers, all possible cases which might injure his surgical success. He has nurses—I will not say "trained" nurses, but "clean" nurses—and he is better able to do that. These surgeons who are engaged in the general practice of medicine, have not got those opportunities. Such a surgeon can do the same thing, but he does it with difficulty; and I have seen an entire hospital laid open to serious injury, to a perfect influx of sepsis, I believe, from the uncleanliness of one gentleman who was present at an operation. Where every care had been exercised, one gentleman who had been present at post-mortems and the visits in general hospitals came, and it is presumed that is the reason so many cases of sepsis appeared at once. It is the hospital of Dr. Martin, to which Dr. Sutton has referred, where I saw, in wards and rooms, cases of the removal of the uterus and the extirpation of fibroids, patients lying side by side with laceration of the perinæum and extirpation of the uterus for cancer, and other cases of serious operations—and hardly an elevation of temperature in one of them—some six in a room and three in a room, and not an elevation of temperature anywhere. A case of lacerated perinæum began to show symptoms of sepsis, and the surgeon had to suspend the operation. Whether it was in the atmosphere or not, it was a most remarkable case. These serious operations—two or three cases of the extirpation of the uterus for cancer and fibroids—were without an elevation of the temperature; simply these little operations showed fever and high fever! There were three or four cases, two of them for laceration of the perinæum, which at once rose rapidly up in temperature, and no more operations were done for a few weeks.

The surgeon in one of these small places, and the general surgeon, is almost obliged to take men out of active practice for his assistants—to take men who are constantly treating cases of all kinds—and he injures his patients. It is ABSOLUTE CLEANLINESS which we wish to reach; and if any one is so fortunately placed as to be able to give up room and assistants for that, in one way I think he is doing good work. At the same time these operations are such as every surgeon and almost every physician is called upon to perform. He is obliged to do it often, and

then it is wrong for him to believe that only under certain circumstances can it be done.

A case of the kind is one whom a gentleman in New Mexico wished to send me—a case where inflammation set in, and the patient would have died, and of course, he had to do it there. I believe we should lay down the law of Absolute Cleanliness, and then let every one exercise it to the best of his ability. But I believe, if any one limits himself to it, and has the means for it, he is doing work in the right direction, and it may lead us to attempt doing—as closely as possible, at least—the same thing. The only law, I believe, for abdominal surgery, is ABSOLUTE CLEANLINESS! But, certainly, the skill and constant attention to a patient will facilitate materially, and that is only to be had by him who will devote himself more exclusively to it. If we could attain these conditions—if it were possible to attain these conditions which are striven for—it would give us better success; but, even in hospitals, I believe there is much to improve, and that, at present, these conditions are only in a few instances attained. It is only in a new hospital that Dr. Martin is building that I believe he will have such facilities. The location that he now has is in the second story of a tenement house; and I have always considered that the doctor's success was not due to his location, but due to his skill—was due to his CLEANLINESS. His present location is in the second story of a tenement house in a large city. The window of the operating room opens on a small yard where the filth of the house is deposited, where there are closets, and which receive the odors from the kitchen and other parts of the building. It is by no means what we should expect as a hospital; and his success, I may say then, is not due to location at all, but to the cleanliness of himself and assistants. The hospital that he is now building has an operating room for abdominal surgery, which has better advantages, and which can be flooded and washed with carbolic acid and other antiseptics. But at present, his work has been done under circumstances as little favorable as regards location as any one could possibly be situated. A tenement house is not a cleanly place; and I do not think that in his case we should lay stress upon that, but upon the cleanliness of himself and assistants—the nurses and everyone. But I should wish to see these conditions carried out here, if possible; and it will enable us to achieve similar success to that which is achieved abroad, though we must admit that in our abdominal surgery we do not obtain results which are achieved abroad. Originating in this country, we are now left behind. (Applause.)

Dr. Beach, of Ohio.

Mr. Chairman:—I simply rise to say, that I think the Section would be glad to hear from Dr. Alexander Dunlap, of Ohio, who has performed cases of ovariotomy more times, I believe, with one single exception, than any other surgeon in the United States. (Applause.)

Dr. Dunlap, of Ohio.

Mr. Chairman:—I will give my experience in the treatment of diseases, when called upon. I have been engaged on this subject for over forty years; and, theoretically, the paper that was read to you is true, but one in which, as I look at it, the main part of the successes of these operations is entirely left out, and is always left out when you take the patients away from their homes to the hospital,—and that is, the condition of the mind. You take a patient who is thoroughly convinced herself that if the tumor is removed, the operation is performed, and she survives the operation, she is able and is going to get well,—you can place her almost in any position and she will get well. You may nurse her in almost any manner, and she will get well.

I had one patient who had been to three physicians and surgeons. They had all the time to operate, but they said it would be certain death to her. But she said she was going to be operated upon. She heard of me and came to Columbus. I would not put her in the general hospital there—the doctor had no place to put her, because there were cases of infectious inflammation in the hospital. I told her to go to some other place, and she afterwards informed me that she had got a room. It was in one of the lowest hovels in Columbus—negroes. I went there and operated on her, but that night the whole of them had got drunk and wanted to have a dance there. Two young men were the only ones there were left with her. I had to go home and came away. I did not know how bad the place was until I came back the next day—but it did not disturb the patient at all. She made a rapid and easy recovery. Now, the conditions around that patient were about the worst—but she showed confidence in me, and I would not operate upon a patient who supposed she was going to die. Place her in the best conditions or surround her with the best nurses, she must come to the conclusion that she is able to bear the operation and can get well; and if you can inspire the patient with that kind of confidence, she is going to get well!—nine cases out of ten! (Applause.) Yes, more than that will get well! All that the patient needs is quiet; and the operator who has the most time to give to it and gives to the patient every advantage, but takes her away from her home, away from her friends and to a hospital, will have that mental condition to contend against.

I do not believe so much in this doctrine that has been stated by Dr. Sutton. I do not believe in it at all. (Applause.) I am very careful to have my hands clean. I am careful when I go into a sick-room; but I am not afraid to go into any sick-room, for I know that within one or two hundred yards the atmosphere of it will be gone. In most contagious cases of small-pox—if you do not get that pus daubed on your clothes or on your hands—the atmosphere will be gone from your clothes before you shall have gone 200 yards from that house.

But there are times when misfortunes will follow the operators—follow them severely and closely, too. Now, in 1883, 1881 and 1882, almost every patient that I had in general surgery, as well as ovarian surgery—my ovariotomies died right off as fast as I could operate upon them. It made me so sick, that I could scarcely bear to hear of a case of ovariotomy.

I could stand one death, but when it came to about three in six weeks I became sick of it. (Laughter.) Now, within the last fourteen months I have performed twenty-three cases of ovariotomy, and lost only two; and of those two, one was 70 and the other 64 years of age, and so broken down in their conditions that I could scarcely have expected them to get well. (Applause.)

Now, I am not afraid to go to scarlet fever and then go to a case of ovariotomy, if I have only one day's time in which to air my clothes. But I am very particular about my hands and instruments, and not only that, but about cleansing the wound—to dry it up to the very bottom of it, to see that there is nothing left in that cavity of the abdomen. And I prefer that the patient shall be left in such a position that the drainage from the lumbar region shall go down to the pelvic region, so that I can know that I have got it all out. If you have the patient in a half-reclining position, the whole of it is drained right down into the pelvic cavity, into the sac, where you can get at it. It is very difficult, when you have the patient lying on the back and the loin is sprung up and the pelvic cavity is on one side and the drainage away up in the lumbar region, to get the intestines away so that you are sure that you have got it all out; and when I speak of "cleanliness," it is to see that there is none of the fluid left there. I have always opposed the use of carbolic acid in the abdominal cavity. Any one in the habit of putting the hand into a weak solution and holding it there awhile, will experience the sensation of numbness—you have paralyzed those nerves; and if you turn in and wash out the abdominal cavity with carbolic acid, you paralyze those nerves and cause the absorption of the fluid as it is borne out of the cavity. And at the same time you will notice that the kidneys, after using the carbolic acid frequently, are very slow in their movements. (Dr. Dunlap was here notified by the chairman that his time had expired.)

Dr. Bartlett, of Wisconsin:

Mr. Chairman:—Before Dr. Dunlap takes his seat, I would like to ask him a question. Can you give any reason, doctor, for the death of those three successive cases of ovariotomy? What was your explanation of it?

Dr. Dunlap: There were atmospheric influences passing over a large section of country—I do not know what they were. The weather was warm.

Dr. Bartlett (interposing): Did that same fatality occur in the same locality?

Dr. Dunlap: Yes, sir; I was practicing over the whole State of Ohio, and nearly all my operations were unfavorable.

The chairman, at this point (3:45 P. M.), announced that he had received information of the death of Dr. S. D. Gross, of Pennsylvania. It was moved by Dr. Bartlett that, out of respect to the deceased, the Section adjourn, to meet again at 4 o'clock P. M. Said motion, being seconded, was unanimously adopted, and the Section thereupon adjourned.

The Section was re-convened at 4 o'clock P. M., pursuant to adjournment, Dr. Gordon, of Maine, presiding during the temporary absence of the chairman, whereupon the discussion upon the paper read by Dr. Sutton was resumed.

Dr. Quimby, of Jersey City, New Jersey.

Mr. Chairman:—I would like to say a few words in regard to the extremes of treatment and precaution. We have, on the one side, those who contend that a person should be almost set apart for certain operations—be kept in an atmosphere free from the fears of germs. We have, also, on the other side, those, with large experience, who say that they are not so very much alarmed,—they do not believe they are walking-magazines filled with bacteria and other things, and carry destruction all around them. I belong to that class, sir, who rather try to get the medium, and believe there are certain dangers to be avoided, and that cleanliness, of course, is the great thing to be observed. But I do not coincide with those who believe that any person should be set apart, as it were, on account of the danger of communication—provided that person is sufficiently cleanly.

I merely wish to make this remark: In our city, at one time, we had quite an epidemic of small-pox, which I think is considered pretty contagious. At that time, I attended a good many cases of small-pox, and attended, also, a good many obstetrical cases at the same time. It is a well-settled opinion that a person should not go from a small-pox case to an obstetrical case. I believe that to be true. Nevertheless, I attended all my small-pox cases and all my obstetrical cases (and I had some twenty of each on the list at one time), in their regular order, and all the precaution I took was to visit all my small-pox cases first, and then, after changing my clothes, I went and made my other visits, and even attended ladies in confinement, with no bad results. Of course, I was particular about cleansing my hands, changing my clothes, and even washing out my hair.

Now, I think that in any of these abdominal operations, all that is necessary is to observe strict cleanliness, and then we may adopt the Lister method or any other method as we may elect. Now, if there was so much danger of carrying these germs with us, it seems to me that in cases of small-pox they would have been carried. And while I think you should be cautious about cleanliness, I do not think there should be that fear, referred to in the paper that has been read here, by any person not exclusively engaged in such practice. I do not believe that anything is necessary except this cleanliness.

A Member: How often have you opened the abdomen?

Dr. Quimby: Well, I cannot say. For abdominal trouble, not more than six or seven times, and only about one half of them recovered. (Laughter.)

Dr. Robertson, of South Carolina.

Mr. Chairman.—I did not have the pleasure of hearing the paper that was read, nor much of the discussion upon it, but I had the pleasure of hearing the remarks of the gentleman who last spoke, and I was very much pleased, because I think there is a bacterio-mania in New York, and the remarks of the gentleman will, I presume, have some influence toward arresting it.

I have witnessed a few cases of ovariotomy, and apparently the most unpromising of cases; and particularly one of the most unpromising cases was supposed to be ovarian tumor, but turned out to be a fibroid. The physician (Dr. Hanneman, of Winchester) was afraid. There was considerable abdominal effusion, which was supposed to be an ovarian dropsy. When they opened the abdomen, it turned out to be nothing but an abdominal effusion and a fibroid of the uterus. The surgeon was rather taken aback, and hesitated for some time whether to proceed; but he concluded, having gone that far, to remove the fibroid, which he did, excising as near to the uterus as he could. He excised the fibroid near the uterus; the patient had a profuse hæmorrhage, and he was unable to apply a ligature. Now, what I wished to say was, that it was one of the most unpromising cases. There was no Listerism practiced at all. This was in a negro cabin—a negro woman. There was no ligation of the pedicle, no antiseptics; there were sponges dipped in Monsel's solution, and applied freely in the cavity of the abdomen, not knowing where it was going, but, of course, intending to go to the cut surface. The sutures were closed up, and the physician went the next day prepared to wash it out with a solution, a fountain syringe, drainage tubes, etc., but found the woman so well and the wound so well united that in two weeks she was up and attending to her duties. That was a fibroid of the uterus, excised without any antiseptics whatever, excised in a negro cabin. Of course, there was great cleanliness observed—cottons applied, cleanliness—but no antiseptic treatment whatever. I also witnessed two cases of ovariotomy by my distinguished friend, Dr. Darby, of New York, where no antiseptics were used, and both succeeded. In one of these cases he removed the uterus and ovaries with a number of fibroids, and there was no antisepsis practiced whatever. A month after the operation, the woman wished to know if she could have sexual connection. (Laughter).

Dr. Sutton, in reply.

Mr. Chairman.—There are two assertions which I have made in my paper, against which no proof has been adduced. I will read them again: 1. "If there be a general surgeon in this country who can show a record of eighty-three recoveries in a hundred cases of ovariotomy, let him speak out, and challenge the truth of this (the preceding) assertion"; and, 2. "I challenge the production of a single operator outside of a private or special hospital, who can show better than eighty-two recoveries in one hundred cases."

Now, gentlemen, we know that European operators have ninety-eight, ninety-seven and ninety-three per cent. of recovery right along. In this country, the best statistics are, eighty-three per cent. by Holman, of Boston, and a little over eighty-two per cent. by Dr. Alexander Dunlap. Now, if these gentlemen get eighty-one and eighty-two per cent. as against ninety-eight and ninety-seven and ninety-three per cent. by foreign operators, what is the cause of the difference? What is the reason that there is a difference between the statistics of these men and the statistics of foreign operators? Is it because the foreign operator is a better surgeon? I deny that. There are as good surgeons in America to-day as ever carved with the knife in Great Britain or upon the continent of Europe. (Applause.)

But it is not the man who can do ovariotomy skilfully, but it is the man who can make his patient get well after ovariotomy; not the man who can cut, but the man who can cut and save his patient. (Applause.)

They tell us that precautions are not necessary. Is it worth while to stop for a moment to consider what the results have been in a few operations? Is it necessary to stop to consider when Dr. Quimby says he has performed six or seven cases with fifty per cent. of deaths? He does not consider that antiseptics are necessary; he will go from small-pox to a woman in labor. Is it a wonder that he has statistics showing fifty per cent. of mortality in ovariotomy? (Applause.)

Let me say to you that every man can decide his work by his own conscience. If he chooses to do an ovariotomy in the amphitheatre, in the presence of one hundred medical students, with dust flying about, with their clothes filled with the zymotic influences of the dissecting room, I say that, if that woman gets well in spite of all that, the Almighty is to be given more credit than the operator. (Laughter and applause.)

Now, gentlemen, again I put the proposition before you. European physicians succeed in America's own operation. What is the reason? The reason is in the direction I have pointed out. Let the wise follow, and let those who will, take the other course—it is nought to me! (Applause.)

Dr. Quimby: I wish to correct a statement made by Dr. Sutton. I did not say that antiseptic precautions were not necessary. The gentleman misunderstood me. Of course they are necessary, but not strained to the point that gentlemen have sought.

Dr. Seymour, of Troy, New York.

Mr. Chairman.—I wish to correct a statement Dr. Sutton has made in regard to Dr. Holman. Dr. Holman has eighty-seven per cent. The first five cases were fatal. Those were without antiseptics, and the next one hundred, under strict antiseptics, of which eighty-seven recovered. Dr. Holman is a general surgeon attached as surgeon to the Massachusetts General Hospital.

Dr. Hurd: What are Dr. Sutton's own statistics?

Dr. Sutton: Dr. Holman, in his published tabulated statement, gives a large proportion of his cases as done at No. 14 Lewisburg Square, Boston. Is that a private hospital?

Dr. Seymour: It is in a measure so.

Dr. Sutton: I assert that Dr. Holman proceeds under the precautions of my paper, and that he has a private hospital or special hospital facilities; that he is not a general surgeon, doing general surgery hither and thither. Am I not right, Dr. Marcy?

Dr. Marcy: Yes, sir.

Dr. Sutton: Now, Dr. Hurd wants to know my own statistics. I began doing ovariotomy in 1875, and from 1875 up to a little over three years ago, I had done but seven cases. Out of those seven cases that I did I had but four recoveries; out of my first three cases I had two recoveries. Now, my operations up to that date were

done just wherever I could get the patient, and make the best arrangements, and those arrangements were carried out always to the utmost extent possible under the circumstances.

Then, dissatisfied with my own results, and having an interest in this matter, I went abroad and watched the work for 19 months of the best operators in the world, and I saw plenty of them. I began my operations again wherever I could get the patients; and I "got left" right along every time, and had four deaths in succession. Last September I saw the folly of the course I was pursuing. It was not the patient, but the patient could not be surrounded with proper precautions in the houses about town. I opened a private hospital for this work exclusively, and in that house I have made abdominal sections seven times. Every one of those seven cases have recovered, and the highest temperature found in any one of them was 101½. (Applause.) There was one supra-vaginal hysterectomy for deformed uterus, one supra-vaginal hysterectomy for fibroid tumors, one double ovariotomy for cystic tumors, and a supra-vaginal hysterectomy on the same patient. Now, in these seven cases —desperate cases, too—who got well, and who got well without causing me the loss of a single night's sleep, if they all got well in a private hospital, there is more in it than simply the manner in which the operation was done. Where you have the patient in her house, her husband will see her, her sister will see her, the children will come in; but when you put the patient under the restrictions of a private hospital, where the head of that hospital puts down his foot and lays down the law, the patient will get well, and the time will come when we will proceed in all cases as Holman is doing in Boston.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

A Sea Atmosphere for the Sick-Room.—Dr. B. W. Richardson, in the *Asclepiad*, gives a solution of peroxide of hydrogen (10 volumes strength) containing 1 per cent. of ozonic ether, iodine to saturation, and 2.50 per cent. of sea salt. The solution placed in a steam or hand-spray diffuser can be distributed in the finest spray in the sick-room, at the rate of 2 fluid ounces in a quarter of an hour. It communicates a pleasant sea odor, and is the best purifier of the air of the sick-room he has ever used. It is a powerful disinfectant as well as deodorizer, acting briskly on ozonized test solutions and papers.

ANATOMY AND PHYSIOLOGY.

On the Physiological Effect of Extirpation of the Thyroid.—We have in the *Archiv für exp. Path.* a report from Schiff and a series of experiments on this subject, which is well condensed in the Edinburgh *Clinical Journal*. Schiff found some years ago (1856) that the majority of animals operated upon for extirpation of this gland, passed, some days or a week or two after the operation, into a peculiar soporific state and died. To explain this, Schiff performed these subsequent experiments, which went to show the following:

(1.) The mere laying bare of the thyroid gland, the section of the recurrent nerve in its neighborhood, the removal of nerve-branches passing to the gland from the recurrent nerve, did, none of them, occasion the peculiar symptoms which followed removal of the gland itself.

(2.) It was also found that the nerve-branches, which in the dog accompany the chief arteries of the gland, and which are branches of the superior laryngeal nerve, might be cut without producing these peculiar symptoms.

Length of survival after operation.—All the animals died without exception, surviving from four to twenty-seven days, and in those which passed the sixteenth day the operation wound was fully healed.

General phenomena.—Occasionally Schiff observed no other symptoms than those which he had already noted in former experiments, viz.: somnolence, loss of appetite, difficulty of swallowing, staggering gait, coma, and death. In other cases he observed that the ordinary condition of the animal was changed, that it was no longer excited when any one approached its cage, but was apathetic. The sleep which showed itself in most of the dogs showed this characteristic, that the animals could not be awakened by noise, but at once awoke when they were touched or shaken.

Movements.—Besides the general slowness of the muscular movements, there was in almost every case well-marked fibrillary muscular contraction under the skin. At later periods these muscular contractions became more severe, and caused convulsive movements of the limbs. In one or two instances the symptoms amounted to tetanus. Schiff frequently observed increased irritability of the phrenic nerve. The normal rhythm of the costal respiration was maintained, but during inspiration and expiration each cardiac contraction produced a sudden contraction of the diaphragm. The process of deglutition was much interfered with.

Sensibility.—There was a feeling of tickling over the skin in many of the animals. The general sensibility of the skin of the limbs became gradually lost from the periphery towards the centre.

Vaso-motor system.—Very low blood-pressures were met with towards the end in several of the animals experimented upon. In two instances there was some œdema, which Schiff ascribes to irritation of vaso-dilator nerves, and which he says was similar to what is sometimes observed after long-continued stimulation of the cut sciatic nerve.

Regarding the whole question of the extirpation of the thyroid, Schiff remarks that the hypothesis naturally occurs to one that that gland has an intimate connection with the nutrition of the central nervous system. This question he proposes to consider more fully in a future communication.

Vivisection.—During the year 1883, according to the annual report just issued to Parliament (*The Med-*

ical Press), 569 experiments were performed on living animals in the United Kingdom of Great Britain, 34 of these being carried out in Ireland. Fifty-five experiments were peformed without anæsthetics, and 122 under certificates giving permission to preserve the life of the animal after recovery from anæsthesia. Concerning this last class of experiments, the report states that in 114 cases the operation consisted of inoculation with various septic matters or morbific organisms, for the greater part connected with an important inquiry into the nature of tubercular affections. No pain was inflicted in these cases, except in about fourteen or fifteen instances, in which disease was produced, but which was very trifling. In the remaining eight cases, in which more serious operations were required, as these were effected under anæsthesia, the only suffering in the animals that survived would be that which attends the ordinary repair of a "surgical injury."

MEDICINE.

ON A PARTICULAR FORM OF AMNESIA. LOSS OF NOUNS.—Dr. W. H. Broadbent presented a paper on this subject before the Royal Medical and Chirurgical Society of London (Proceedings). The patient was a gentleman, aged 77 at death. He had a slight and fugitive attack of right hemiplegia, with predominant affection of the face and hemianæsthesia, and an affection of speech, which in about a month settled down to the defect characterized by the impossibility of saying nouns substantive, while other parts of speech were spoken freely and distinctively, which remained the same for more than five years. During all this time he never uttered a noun, except once or twice by accident, so to speak, and inappropriately, while he could say other words and employ long phrases so long as they did not contain a noun. When he wished for anything he would say "Please give me the one," and the nurse would make guesses what it was. Other mental functions normal.

The lesions found after death were limited to the left hemisphere of the brain, and consisted of small and unimportant depressions in the posterior part of the intra-ventricular corpus striatum, slight diminution in size of the thalamus, complete atrophy of the calcaravis in the posterior cornu of the ventricle, and, finally, an extensive area of softening within the fissure of Sylvius in the posterior half of its extent, sparing altogether the anterior and antero-lateral convolutions of the insula, the third frontal, and the foot of the two convolutions of Rolando, destroying completely the two long posterior convolutions of the island and the subjacent white fibres down to and including the corresponding part of the external capsule, but not invading the lenticular nucleus (or extra-ventricular corpus striatum), and undermining the supra-marginal lobule and angular gyrus, but not implicating the entire thickness of their axial white fibres or reaching the convexity of the hemisphere. The infra-marginal or first temporo-sphenoidal convolution was remarkably little affected.

The hypothetical mechanism of speech and thought advanced by the writer, assumes that in the highest or cerebral, as in the lowest or spinal nerve-centres there are sensory and motor departments, the motor apparatus being educated, so to speak, by the sensory; this education being represented structurally by the formation of groups of cells, through which orderly movements are effected.

On the sensory side, it is supposed that in the integration of speech and thought, perceptions from the different perception centres converge upon a common cortical area where they are combined or elaborated into an idea, this idea being symbolized by the associate auditory perception or name. The corresponding motor-centre to this name or idea-centre is supposed to be a propositionizing centre, in which takes place the mental rehearsal of a phrase or sentence, which is a necessary antecedent to its utterance.

Hence if the path from the visual perception centre to the naming centre were interrupted, the sight of an object would no longer recall its name, and a case answering to this condition has been related to the Society. Again, damage to the tract of fibres passing from the auditory perception centre to the naming centre would prevent the patient from understanding what was said to him. The case forming the subject of this paper is supposed to illustrate damage to the communicating tract between the naming and the propositionizing centres. The patient could rehearse a phrase in his mind, but the name or noun was not supplied from the appropriate centre.

CURABILITY AND TREATMENT OF LOCOMOTOR ATAXY.—Among 300 cases which Eulenberg has been able to follow, he has found only three cures. He believes, however, that the number might be increased were sufficient energy expended on the treatment. He holds that the curative action of silver is incontestable, but that it is often inert when given in the form of pill or powder. He recommends that it should be given subcutaneously, either as the albuminate, or as the hyposulphite.

℞ Chloride of silver.....10 centigr.
Hyposulphite of sodium.....10 centigr.
Distilled water.....20 grammes. M

An injection is given daily in the dorsal region, of 10 centigrammes to 1 gramme. There is generally a temporary disappearance of the pains, and when they reappear after two or three hours they are generally removable by a cold compress. Hypodermic injections of strychnine in doses of 4 to 6 milligrammes have, in several cases, been followed by a remarkable diminution of the motor and sensory disorders. Local refrigeration by means of ice or cold compresses along the vertebral column has had beneficial results. The degree of cold has been determined by the individual sensibility of the patient. With the nitrate of silver, the continuous current, and local cooling, he has in numerous cases improved the patient's condition.

SKRLJERO.—The Vienna correspondent of the *Medical Times* gives a case of this unpronounceable disease with remarks by Prof. Neumann. It seems that in the spring of this year this curious disease formed

the subject of a discussion in the Austrian Parliament. The government proposed that thirty thousand florins ($12,500), should be granted for the suppression of the disease, which was extremely prevalent in the maritime districts of Croatia and Dalmatia, and which, according to the opinion of the chief sanitary authorities and of the Professors Hebra and Sigmund, was nothing else than syphilis. Persons suffering from it were to be compelled to undergo regular treatment. Dr. Roser opposed the motion, and proposed that a committee of specialists should be appointed to again enquire into the character of "skrljero," and that the necessary measures should be taken after they had reported. Professor Schneider, the adviser of the ministers, took the side of the government, and referred to the opinions already pronounced by the authorities mentioned above, upon which the motion of Dr. Roser was thrown out, and the proposal of the government accepted.

The notes of the case state that the patient was a native of Dalmatia, aged 24, who four years previously had intercourse with a woman who suffered from skrljero, and that since that time he had suffered from a disease which began with an ulceration on the penis, and was followed at an interval of some weeks by ulcers and nodules on the skin, which appeared and disappeared. He also calls his disease skrljero. The patient now presents the following symptoms: On the upper and lower extremities are to be seen round and oval cicatrices varying in size, denuded of their pigment in the centre, but containing some pigment at their periphery. These cicatrices are especially marked on the extensor muscles of the extremities, in several places they run into each other and present a bilobate or trilobate outline. The forehead, the ridge of the nose, the zygomatic processes, and the upper jaw are covered with white cicatrices of the size of a lentil, the space between these cicatrices presenting several nodules. Similar cicatrices and nodules are also present on those parts of the head which are denuded of hair; the two alæ nasi are converted into thin cicatrices, and stand at a higher level than usual, so that the septum is quite uncovered. Taking all these symptoms into consideration it is evident that this affection is syphilitic disease in the tertiary stage, in fact tertiary syphilis.

This patient was not submitted to specific treatment during the four years that he has been diseased, and he has been in want of proper nourishment. If a disease of this kind is not treated in the proper manner, if, moreover, it is complicated with other diseases, there take place aberrations in the course of the syphilitic progress, giving rise to symptoms which deviate very often from those we are accustomed to see, and which we recognize as syphilis only with difficulty, and after long and careful examination. Hence names have been invented for different endemic forms of disease, as skrljero in the Fiume littoral, radesyge in Norway, fibbens in Scotland, morbus dittmarsicus in the marshy regions of Germany, falcadine in Italy, pian and yaws in Africa, all of which are believed to be endemic diseases with an independent existence. But if we examine the diseases which are called by such different names, we find that they represent a series of chronic diseases, which are to be found also with us, and among which syphilis, lupus, scabies, psoriasis, and chronic skin-ulcerations are the most common and play the chief part. The syphilitic cases of skrljero are characterized by the fact that an anti-syphilitic treatment, especially a mercurial one, is followed by rapid cure.

SURGERY.

A Case of Fracture of the Odontoid Process of the Axis.—Küster (*Centralblatt für Chirurgie;* Edinburgh *Clinical Jour.*) gives a case which is one of great surgical and forensic interest; the patient being a girl, æt. 18, whose occiput was repeatedly struck against a beam. Immediately after the injury, slight pain and stiffness were complained of, but she performed her usual duties during the remainder of the day. On the following day, on attempting to rise, she was suddenly attacked with convulsions, and became speechless. For five days there was no return of consciousness, and the power of speech returned only at the end of nine months.

Fourteen months after the injury was received, the case came under the care of Professor Küster. At that time there was motor paresis of the extremities, with a marked increase of reflex excitability, especially of the tendon reflex, and great tenderness of the cervical portion of the spinal column. There was also complete inability to hold up the head, with increased prominence of the spinous process of the axis, and abnormal prominence of that vertebra anteriorly at the posterior pharyngeal wall, immediately below the basis cranii.

The case was treated by strong continuous extension of the head upon the trunk; and under this treatment the symptoms of interference with the cord gradually disappeared. In three months the patient was able to leave her bed, with the head securely supported by a leather cravat. In another month she was sent home in this condition, but returned in eight weeks, when it was found that the head could now be supported without any assistance; the prominence, however, both anteriorly and posteriorly, was persistent.

Professor Küster looked upon this as a case of complete recovery after fracture of a cervical vetebra, contrary though such an opinion was to all previous experience. In the discussion which followed the reading of this paper, it was suggested that the case was one of hysteria; but this Professor Küster felt no difficulty in refuting, as the very distinct objective symptoms of fracture were to his mind conclusive proof that such was the nature of the case.

On Ingrowing Toe-Nail. — Mr. Greig-Smith (Bristol *Medico-Chirurgical Jour.;* Edinburgh *Clinical Jour.*) divides this subject into two classes, intrinsic and extrinsic:

a. Intrinsic, i. e., in the nail, or in the surrounding tissues, or both.

1. In the nail. In some persons the nails are convex, and dip deeply into the surrounding flesh. In such cases, the ordinary nail-cutting is difficult, and

a spicule of bone is often left behind which insinuates itself into the neighboring flesh. The latter swells and conceals it. Irritation is thus set up, and the condition developed.

2. In the flesh. Some people have redundance of flesh in their toes, overlapping the nails. The confinement in the boot and soddening perspiration starts the condition.

3. In both nail and flesh. The existence of both the above conditions—an arched toe-nail and an excess of soft tissue—will frequently be found associated with the malady.

b. Extrinsic, or from causes lying outside the nail and its surrounding tissues.

1. Flattening of the arch of the foot. When the natural arch is destroyed, the anterior pillar, the ball of the great toe, atrophies, and the patient rests the weight of the body on the whole of the flattened sole. At the end of the step, when the knee is flexed, the weight is transferred to the anterior portion of the foot. This is naturally the pad at the root of the toes, particularly of the great toe; but when the plantar ligaments are relaxed and perhaps painful, this support is not available. Recourse is then had to the only available help, the only tendon which passes from the top of the arch of the foot to its anterior extremity, viz.: that of the flexor longus pollicis. By its contraction the tip of the great toe is brought to the ground, and acts as a substitute for the natural pier. But constant use of the toe in this wise induces hypertrophy of its tissue, and consequent overlapping of the toe-nail. By easily understood stages this hypertrophy becomes irritation, inflammation and suppuration where the flesh is crowded over the edges of the nail, and we thus get the condition fully developed.

It is simple flat-foot, pes planus, and not splay-foot, pes valgus, which is most likely to start the mischief. If splay-foot causes it, it is more by everting the toe from pressure on its inside in walking, and so squeezing it against the second toe.

2. Eversion of the great toe. This is most frequently dependent either on a habit of walking with the limb much rotated outwards, or on a congenital deflection of the toe itself. This too close proximity may merge into a passing beyond, and then we have the second toe, perhaps with the third, overriding the great toe and evidently causing the complaint.

3. Inversion of the lesser toes. In this case the same result is produced by a deviation inwards of the second and third toes.

Treatment. a. 1. Careful attention to nail cutting. If the granulations are exuberant, the application of a crystal or two of chromic acid, which leaves a hard, dry scab under which the sore quickly heals.

2. Where the cause lies in a superabundance of flesh in the toe, a condition which is usually accompanied with thin, tender skin, which perspires and chafes readily; first, apply chromic acid if necessary, and thereafter, pressure either by strapping or by elastic. Every night the affected toe is to be surrounded tightly from the lip upwards by thin strips of adhesive plaster, taken out of boiling water. This may be removed in the morning and replaced by an India-rubber cap, such as is worn over a sore finger during a post-mortem examination. The toe is thus rendered and kept anæmic by compression; congestion is removed, and the tissues get more firm and resisting in the course of a few months. Dusting the foot with boracic acid is also good.

3. A judicious combination of the methods just described.

b. 1. Of the extrinsic causes, the most important is flattening of the arch of the foot. Wear a small pad of several thicknesses of chamois leather or flannel under the ball of the great toe. This pad may be put on every morning, and retained in position by a collar of thread or elastic carried around the root of the great toe. After a few months the pad may be gradually given up.

2. When the cause is eversion of the great toe, place a pad between the great and second toes, stoping short of the sore part. This pad, which may be constructed of several layers of flannel or chamois leather, is retained in position by two collars round the great and second toes respectively.

3. In cases where the second and third toes overlap the first, the condition is easily remedied by wearing a double band of tape so arranged as to keep these two toes turned outwards and pushed downwards.

Such is the scientific treatment of the complaint. But in a class that cannot afford to temporize, Mr. Greig-Smith removes the matrix as well as the nail, and scrapes the periosteum off the bone. The operation is a simple one and by the exercise of a little dexterity may be done on both feet while the patient is under the influence of nitrous oxide gas. The knife grazing the bone is carried rapidly round the flesh on the right side of the nail, and, by a change of the same movement, passes under the nail down to the bone, and lifts away nail, matrix, and suppurating flesh. A piece of boracic lint is wrapped tightly round the toe, and need not be removed for a week. In the meantime the patient may get about. At the end of the week the sore will be smaller than the nail removed, for the healthy tissues have been pressed inwards over the sore. In three weeks the wound is cicatrized over; and most likely in a few weeks more a stunted nail is developed, like that usually seen in the fifth toe, from which no trouble ever arises.

The sore from this operation heals as quickly as that from simple avulsion of the toe-nail; and there is no young and tender nail to be guided in its growth, and perhaps cause the old trouble in its maturity. This simple cicatrization is altogether a more rapid and less painful process than the growing of a young nail.

As a plan of treatment he believes that mere avulsion of the toe-nail ought to be abolished from surgery. It gives much discomfort during the growth of the young nail, does not attack the true cause of the mischief, and is most uncertain as a mode of cure. The toe-nail is useless; a firm cicatrix is innocuous, and not more unsightly than the ordinary toe-nail of the adult. The removal of the matrix, and the scraping of the bone is certain to cure the very worst case of the disease.

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

The Editor of this Journal would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, SEPTEMBER 20, 1884.

Illinois State Board of Health and Vaccination.—At the regular quarterly meeting of this Board, held in Springfield, Ill., July 2 and 3, 1884, the following resolution was adopted:

"*Resolved*, That the increasing prevalence of small-pox in London and elsewhere, indicating a probable renewal of the epidemic tendency, and its frequent introduction into Illinois from neighboring States within the past few months, make it desirable that vaccinal protection be secured as fully as possible in every portion of the State; and to this end the Secretary is hereby authorized to call the attention of sanitary authorities and others to the subject, and to take the necessary steps to push the further enforcement of the school-vaccination order of the Board, so that all new scholars, and those who have not heretofore fully complied with its provisions, may be properly protected against small-pox before the advent of cold weather."

The Secretary of the Board, availing himself of the authority here given, has issued the following order and accompanying comments:

"In accordance with this action of the Board, county superintendents of schools, school directors, trustees and teachers, are hereby reminded that the admission of any child to a public school in this State, without presenting satisfactory evidence of proper and successful vaccination, is prohibited.

"In this connection attention is respectfully invited to the following facts, concerning the operation of the school-vaccination order during the winter of 1881–82, and which are compiled from the fifth annual report of the State Board.

"When the school-vaccination order went into effect, January 1, 1882, nearly 69 per cent., or over 490,000, of the enrolled scholars in Illinois were either entirely unprotected against small-pox by vaccination, or had again become susceptible through failure to re-vaccinate at the proper time. Within sixty days, that is by the 1st of March, 1882, there was less than 6 per cent. of unprotected and susceptible remaining among those in attendance; and the frequency of small-pox and varioloid among public-school children had been lessened more than one-third, while the mortality rate of cases was reduced from 16.5 per cent. to 3.3 per cent. On the one hand, the number of cases was reduced, owing to the general vaccinal protection; and, on the other hand, the cases which did occur were milder and less fatal, because of the modifying effect of vaccination. The small-pox reports made to the Board from all parts of the State during the four years, 1880–1883, show that the deaths among *unvaccinated* school-children were at the rate of 48 in every 100 attacked; while the deaths among *vaccinated* school-children were only in the proportion of *nine-tenths of one per cent.* of those attacked. It is difficult to conceive of a stronger argument than these figures present for the necessity of a thorough enforcement of proper and successful vaccination as a prerequisite to admission to the public school-room."

The printed circular, just issued from the office of the State Board, from which we have taken the foregoing paragraphs, also gives full instruction as to what constitutes "proper and successful vaccination," and all necessary instructions to school authorities and teachers to enable them to execute the orders of the Board efficiently. Experience has fully proved that without some strong compulsory influence, large numbers of both children and adults will be allowed to accumulate in every populous community, without any protection against variola, and are, consequently, ever ready to become its victims, and to aid in spreading the disease to others.

As a very large proportion of all the children in the State desire admission to the public or other schools supported wholly or in part by public taxation and controlled by public officers, the making of proper vaccination a prerequisite for such admission becomes one of the most efficient methods of securing a near approach to the complete protection of the whole population. If the same method was adopted and enforced in every State, it would greatly lessen the danger of having the disease gain a foothold anywhere.

Medical Education and Medical Societies.—The stand taken by the Nebraska State Medical Society in regard to the admission of members, as indicated in the letter of Dr. Mansfelde in the preceding number of this journal is highly commendable. If it were taken by every State and local medical society in our country, and the conditions named faithfully exacted, it would soon bring a marked im-

provement, more especially in the preparatory or general education of those who propose to enter upon the study of medicine, which is really more important so far as regards the standing and usefulness of the profession than any other one item connected with its education. Forty years since we urged this subject upon the attention of State and local medical societies with all the ardor of youth. We then claimed that it was the duty of the profession at large to erect and enforce a proper standard of general education for those who might propose to study medicine, by having every medical society provide a board of censors for making the necessary preliminary examinations, and no member of said society should receive a young man or woman as a student of medicine who had not first obtained a certificate of proper qualifications from such board. We have not changed our views on the subject since, but we have lived long enough to learn that members of the medical profession are no more exempt from inconsistencies than other classes of people.

We have seen parties, who in medical society meetings and addresses, would advocate the most rigid exaction of a fair standard of general education, take students into their own offices who had not even a respectable common or district school education, and then advise them to attend medical colleges, where not only no standard of general education was required, but where a diploma could be obtained for an expenditure of the smallest amount of time and money. We have no doubt, however, but that the Nebraska State Medical Society is in earnest, and its Secretary is doing a good work in the office he holds.

CHOLERA IN EUROPE.—In Marseilles the epidemic seems to have spent its force. Under date of Sept. 14 but two cases are reported. The total number of fatal cases in that city, from the outbreak of cholera up to the present date, has been 1,445. Of these, 1,140 were Frenchmen; 247 Italians; 19 Spaniards; 11 Greeks; 6 Austrians; 5 English; 11 Swiss; 3 Germans; 2 Americans, and 1 Swede. From Toulon the last reports are favorable. Fourteen cases are reported during the two days ending Sept. 14.

The malignant scourge seems, however, to have lost none of its virulence. The theatre of action is transferred to Naples, where, during the past week, its ravages have been terribly severe. Nor is this surprising.

If any city on the continent was in favorable condition for the pestilence to do its worst, that city was Naples. Its tenements literally swarm with inhabitants, filthy beyond description.

Its narrow tortuous streets, shut in by high buildings, into which the sun can scarcely pierce, damp and reeking with filth, its drainage neglected, its sewers discharging their foul pollutions all along the base of the hills, until the bay is contaminated with the accumulations of years, such are the conditions joined with the intense heat of the city in summer, which conspire to produce the alarming fatality of the present visitation.

Our dates from Naples are up to Sept. 14. During the previous two days 1,229 cases had been reported in the city, of which 687 had been fatal. During the same period 129 other cases are reported at various points in Italy, of which 43 were at Genoa. With less of poetic inspiration than when it was uttered, but with far more truthfulness it may *now* be said "See Naples and die."

The warnings from Toulon and Marseilles—and now repeated with such terrible emphasis at Naples, should not fall idly upon the ears of those who, in the old world or in the new, are responsible for sanitary conditions.

To be unprepared for the epidemic, so far as human agencies can avail, is to be criminal. With a rigid surveillance of our cities and thoroughfares, the courage of the people will be maintained, and if the pestilence shall make its appearance upon this continent, it will doubtless be shorn of its terrors if wise and efficient counsels shall prevail.

THE AMERICAN PUBLIC HEALTH ASSOCIATION, which will hold its next annual meeting in St. Louis, Mo., on the 14th of next month, has met with serious losses by deaths during the past year.

Five members of the Advisory Council of the Association have died within the past year, viz.: Dr. Elisha Harris, of New York; Dr. Charles W. Chamberlain, of Connecticut; Dr. Robert J. Farquharson, of Iowa; Dr. John Taylor Gilman, of Maine; and Dr. Hillary Ryan, of Texas.

Dr. Harris was one of the founders of the Association and its President at the session of 1878. He was Secretary of the State Board of Health of New York at the time of his death. Dr. Chamberlain was also Secretary of the State Board of Health of Connecticut; and Dr. Farquharson, an ex-medical officer of the United States Navy, Secretary of the State Board of Health of Iowa.

The American Gynæcological Society is to hold its next annual meeting in Chicago, commencing on the 30th inst.

The local committee of arrangements have made preparations to give the members of the Society from other parts a cordial reception, and to obtain for them a generous hospitality during their stay. A full attendance and profitable meeting is expected.

Dr. J. G. Kiernan, of this city, has been appointed by the County Commissioners, Medical Superintendent of the Cook County Asylum for the Insane.

Dr. John G. Adams, one of the oldest and most beloved of New York physicians, whose death was announced a few weeks since, left by his will the following bequests:

Five thousand dollars to the Presbyterian Hospital, for a free bed for the sick poor of the Brick Church; $5,000 to the Academy of Medicine, to pay off the debt on its building (this bequest is revoked by codicil on account of the action of the Academy in reference to the new code); $2,500 to the Bridgeport Protestant Orphan Asylum and Hospital; $500 each to the Physicians' Mutual Aid Association, and the Training School for Nurses. His medical library is bequeathed to the New York Academy of Medicine.

SOCIETY PROCEEDINGS.

HYSTERIA, AS AFFECTED BY REMOVAL OF THE OVARIES.

BY G. L. WALTON, M.D., BOSTON.

Read before the Section for Clinical Medicine, Pathology and Hygiene of the Suffolk District Medical Society, April 9, 1884.

It is not the object of this paper to discuss oöphorectomy, as such, either from the surgical or the moral point of view, but to consider the question of hysteria as benefited or not benefited by the operation. This operation having, in the face of persistent opposition, forced itself into recognition on purely gynæcological grounds, the neurological aspect of the subject seems now to attract considerable attention, and its importance is not inconsiderable.

That all sorts of reflex nervous symptoms accompany diseases of the uterine appendages is a well-recognized fact. Similar symptoms appear, to be sure, in women with normal reproductive organs, and even in men, facts which have led to the depreciation of the uterine origin of hysteria to the degree that we sometimes meet with the statement that hysteria is *always* a constitutional disease, having no relation whatever to the pelvic organs. Now, although this is undoubtedly the usual character of the disease, there are certainly many cases in which hysteria occurs in persons possessing no constitutional tendency to nervous trouble, the symptoms dating accurately from disease of the pelvic organs. In view of these cases we must take a step backwards toward the ancient view that all hysteria arose from uterine disorder, substituting, however, probably here the ovaries for the uterus as the seat of original irritation. It becomes of practical importance to consider this subject carefully, for if hysteria exists in a given case of pelvic disease in which operation is proposed, and if the hysteria is considered to be dependent on the ovarian irritation, there will be an additional indication for removing the offending organ. Indeed, if the hysterical symptoms reach a certain degree in such a case they may alone furnish sufficient cause for the operation. One finds not infrequently among reported cases of Battey's operation the statement that the reflex nervous symptoms were relieved. Detailed accounts of such symptoms are, however, not common, and it seems probable that among these cases typical and measurable symptoms of hysteria, such as hemianæsthesia, would be oftener found if oftener sought. As a rule, however, the nervous symptoms have occupied the background, the important indication for operation being generally the dysmenorrhœa.

The question of removal of the ovaries for hysteria alone has now been broached, and has already been practically tested with results diametrically opposed.

As an example of unsuccessful operation may be cited the case of Landau and Remak[1], in which both ovaries were removed on account of hystero-epilepsy, combined with hysterical hemianæsthesia. The ovaries were found normal, and the nervous symptoms were not alleviated in the least. These writers express, therefore, the opinion that the operation for hysteria is unjustifiable, and that the tenderness existing over the ovaries in this disease is merely a hyperæsthesia symptomatic of the general nervous irritability rather than pointing to the source of the nervous trouble. On the other hand, a large number of cases have been reported in which hystero-epilepsy and similar symptoms have disappeared after removal of the ovaries. In the collection of 218 cases made by Battey of the operation between 1872 and 1881 epileptic attacks were present in twenty-six cases, and were relieved in over two-thirds of the number. A number of cases have been reported since this collection was made in which hystero-epilepsy has been the chief indication for removal of the ovaries, and has disappeared or been greatly mitigated by the operation.

As examples of such cases may be mentioned two of Carstens',[2] whose histories were briefly as follows:

Case I. The patient, twenty-four years old, single, had been a sufferer about five years from dysmenorrhœa, leucorrhœa, and severe hystero-epilepsy, coming on at the menstrual periods. There was no hereditary nervous tendency. Examination showed retroversion of uterus, slight endometritis, internal stenosis of uterus, and ovarian tenderness. The left ovary (adherent) was removed, together with a small cyst

[1] Zeitschrift f. klin. Med. Berl. 1883. Vi. 437-454.

[2] *American Journal of Obstetrics*, March, 1883.

from the left Fallopian tube. The operation was followed by disappearance of the menses, and by permanent relief of the hystero-epilepsy and the leucorrhœa, at least neither had recurred a year after operation.

CASE II. The patient, twenty-four years old, married, has no nervous family history. Severe ovaralgia came on four years ago, accompanied by pain in the vetex and attacks of hystero-epilepsy, occurring sometimes daily. Examination showed retroflexion of the uterus and exquisitely tender left ovary. This was removed, and found diseased. Perfect cure followed, without remission up to the time of second report, made four months after operation. The conclusions drawn by Carstens are as follows: "In general I might conclude that Battey's operation is not only justifiable, but really we might say it is criminal neglect not to perform it in cases which fail to be benefited by other treatment. It is a last resort after every other proper treatment has failed in cases which are caused by ovarian disease, such as hystero-epilepsy, dysmenorrhœa, and menorrhagia due to fibroid tumors, and which either endanger the life of the patient or make life a burden to her.

These views are certainly justified by experience, and the difference between these results and those of E. G. Landau and Remak seems to lie in the selection of cases. That operated on by the latter writers was one of the large class of hystero-epileptics in which the nervous condition is independent of the uterine appendages. The fact was established by examination of the ovaries after operation that in this case the ovarian tenderness did not result from disease of those organs, but was only indicative of general sensitiveness of the nervous system. As regards this class of cases, which is to say, probably, as regards the large majority of cases of hysteria, the conclusions of Landau and Remak are undoubtedly correct. Such cases, however, as those operated on by Carstens come under quite another category, in that the hysterical symptoms were manifestly secondary to and dependent on ovarian irritation. It is only with regard to the latter class of cases that the question of operation should ever have been considered for a moment, and the first question to be asked is, Into which class does the case in hand fall?[1]

It may be well at this point to consider briefly the probable physiological relation between hysteria and the ovaries in the two varieties of hysteria, idiopathic and symptomatic.

Hysterical symptoms, mental, paralytic, and convulsive, arise probably from perverted function of the cortical cells of the brain, the final centres of sensation and motion, and the seat of the mental processes. This may be considered the accepted view of neurologists at present. Just what pathological state obtains in those cerebral cells is still a matter of conjecture. Post-mortem examination reveals nothing. Whether the disturbances arise from vaso-motor irregularities, to minute changes in structure, or to mere alteration in reflex irritability without anatomical basis we need not question at present. All that interests us in this discussion is the fact that the connection is a close one between these perverted cerebral states and disordered visceral organs, and that, whatever the *modus operandi*, cerebral and abdominal irritability generally, if not always, co-exist in cases not only of hysteria, but of the allied nervous conditions, as hypochondria and neurasthenia. Now the link through which the connection is established between brain and viscera can be none other than the sympathetic nervous system. From this system the ovaries are richly supplied from the renal plexus, whose connection with the brain is anatomically a very direct one, although this is by no means an important factor, inasmuch as the physiological relation between all parts of the sympathetic nervous system is so close, and the transit so rapid, that the most distant portions of the body are always in intimate and immediate connection.

In cases of hysteria the cerebral disturbance is evidenced sometimes by *loss* of activity motor and sensitive, as in paralysis, and sometimes by *increased* activity, as in convulsions and hyperæsthesia. Again, both classes of symptoms often co-exist in the same patient, some cerebral functions being abnormally active, while others are depressed. Among the symptoms illustrating the former no one is more constant than hyperæsthesia. Spots of hyperæsthesia are sometimes found on the scalp and sometimes on the spine, but rarely fail in the region of the ovaries. The opinion is, to be sure, held by many distinguished writers, as, for example, by Westphal, that this tenderness is in connection with the abdominal wall, not the ovaries. But this view seems clearly disproved by the fact that the spots of tenderness rise during pregnancy with the uterus and fall again after childbirth.[1] The ovarian tenderness arises probably from the peculiar irritability of the rich sympathetic nervous supply of the ovaries, an irritability greatly increased at certain periods by the congestion to which the female reproductive organs are subject. In the ordinary case of hereditary hysteria, this tenderness being merely a local symptom of excessive excitability, the removal of the ovaries will have no more effect on the disease than the removal of a sensitive spot of skin over the spine.

In the acquired form of hysteria, as in that secondary to peritonitis, cellulitis, or cystic degeneration of the ovaries, the symptoms may be much the same as in hereditary hysteria, but the whole train is probably started by mechanical irritation as by the pressure of an exudation upon this same ovarian nervous supply, the line of transmission of irritability being from the ovaries to the brain and thence to the various parts of the body. In such cases the hysterical symptoms may not only furnish an additional indication for the removal of the source of irritation, but they alone may make life such a burden to the patient as to render the operation not only justifiable but imperative. Certainly when the cerebral irritability culminates in persistent hystero-epilepsy with its usual accompaniments, mental and physical, any

[1] Cases of *insanity* accompanying menstruation have indeed been relieved by the removal of normal ovaries and tubes, merely by establishing the menopause, and perhaps analogous cases of hysteria exist. I should hesitate, however, at present, except in a most aggravated case, recommending the operation for hysteria unless organic disease were suspected.

[1] Féré.

measure which promises a chance of relief is worthy of careful consideration.

Until a comparatively recent date the symptoms of hysteria have received so little systematic study that it is only in the latest reports that we find accurate accounts of the nervous manifestations in individual cases. Recent investigations have, however, enabled us not only to classify more or less satisfactorily the seemingly incoherent symptoms of this protean disease, but have brought to light a new symptom whose importance cannot be overestimated, in that it gives us when present a comparatively accurate measure of the severity and progress of the disease. I refer to unilateral loss of sensation.

Hemianæsthesia should, then, always be sought in cases of functional nervous disease, whether idiopathic or secondary to disease of the visceral or other organs, and the clinician who follows this plan will be surprised by the frequency of its occurrence in a marked degree unsuspected even by the patient.

The following cases, which have come under my observation, and in one of which the ovaries have been removed with a (so far) successful result, will serve to illustrate the presence, among other hysterical symptoms, of a typical hemianæsthesia secondary, probably, to disease in the pelvic region.

Case. The first patient, Mrs. H., was sent to Dr. H. W. Bradford on account of indistinct vision. Dr. Bradford attributed the ocular disturbance to the nervous trouble, and requested me to examine the case.

The patient, thirty-two years old, married, without issue, belongs to a family with no mental or nervous history excepting that the father died of apoplexy. The mother is living and well. During the past ten years the abdomen has been excessively tender, especially in the right side, pressure there causing pain for days afterward. Within two years she is said by her family physician to have had an abscess in right iliac region with an offensive discharge per vaginam. For about ten years the patient has suffered from severe headaches, accompanied sometimes by vomiting, and sometimes by ringing in the ears and vertigo, with tendency to step up and to fall forward. The headaches begin about a week before the menstrual period, and disappear a week after. During this time her sight, at other times fair, is very indistinct. During this period, also, the patient is forgetful, incapable of mental exertion, and makes such mistakes as bringing a plate when she goes for a fork, often enough to cause her anxiety. Between the periods her mind is perfectly clear and vigorous. She has suffered from cramps in the right arm and leg, and from temporary loss of power, having, for example, dropped a plate from weakness of the right hand. She has herself noticed that the sense of smell is much better on the left side than on the right, and she always uses her smelling bottle on that side. The appetite is fair, the bowels constipated. The menstrual flow is moderate in quantity and very painful. The headaches are seated principally at the vertex and temples, and are accompanied by coldness of the vertex, dilated pupils, and by paleness of the face.

Physical examination. The heart and lungs are normal. The pupils are large, alike, and react sluggishly to light. Patellar reflex exaggerated on both sides. Extreme tenderness of the scalp is found, especially at the vertex, and there are tender spots on the temples. There is no tenderness elsewhere excepting over abdomen. The abdomen is full and tympanitic everywhere. The left ovarian region is somewhat sensitive to pressure, and on the right side the tenderness is so excessive as to preclude careful palpation, the lightest percussion causing pain over a large area. No vaginal examination was made. The report of a previous examination contains the information that anteversion of the uterus existed, that the cervix was normal, and that there was slight vaginismus.

Motion. There is no special loss of motion in any muscle or group of muscles, but the strength is greater as a whole on the entire left side.

General sensation. There is loss of all forms of sensation on the entire right side to the median line; only moderate heavy pressure being perceived on this side, while on the left the lightest touch is everywhere felt.

Special senses. The sense of *smell* is greatly impaired on the right, also that of taste. The smell of menthol and the taste of sugar, both distinct on the left side, being barely perceived on the right. The *hearing* through the bone is wanting on the right, and that through the air is greatly impaired, the watch which is heard at 50 centimeters on the left being heard on the right at only 15. The hearing for high tones was not tested. The membranes are normal; the Eustachian tubes quite free.

The report of the *ocular* examination, kindly given me by Dr. Bradford, is as follows: Vision with right eye $^{7}/_{10}$ (Monoyer) emmetropic. With the left eye there is perception of light only, with lateral fixation. No visual field for form or color to be obtained. The field for form in the right eye is concentrically retracted excepting downwards, where the apex of a triangle reaches the normal limit. The fields for color in this eye are all concentrically limited, with reduction of the field for blue (outside) to nearly the degree of red and green, the fields of the latter colors being about one-third of the normal, that of blue one-sixth. The fundus on the right is normal. On the left, upon continuous exposure, the arteries seem to contract to one-third their diameter, and the patient becomes unable to continue. (This result was several times repeated). The pupils retract normally to accommodation, sluggishly to light, and are one-third or more larger than normal.

The diagnosis was that of hysteria, probably secondary to abdominal disease. The coldness of the head, dilatation of the pupils, and ischæmia of the retina (left) pointed to irritation rather than paralysis of the sympathetic, and nitro-glycerine in drop doses of the one per cent. solution was advised, in the hope of at least relieving the headaches. Operation on the ovaries was in this case not considered, but if the symptoms should become so severe (to use Carstens' expression) as either to endanger the life of the patient or to render it a burden, and if careful local examination should reveal a pathological lesion involving the ovary, and if, again, all other treatment, local and

general, should prove useless, the operation should certainly be taken seriously into consideration. The headaches and general condition were reported some time after as benefited, apparently by the nitroglycerine.

It seems a pertinent inquiry, foreign to the question under discussion, but bearing on the pathology of hysteria, whether anæmia of the surface of the left hemisphere, resulting from spasm of the blood-vessels, may not have been the cause of the anæsthesia and weakness of the opposite side. It is certainly an interesting, and, as far as I know, unique phenomenon that the visual defect in the right eye was typical of central disturbance (amblyopia, with concentric retraction of the field), while the blindness of the left eye was that of retinal ischæmia.

CASE. The second patient, Miss A., was one operated upon by Dr. Barss, of Malden. The nervous symptoms being pronounced, Dr. Barss kindly gave me the opportunity to examine the patient before and after operation. The case will be reported by him in detail later, but a brief sketch of the important facts will be of interest in this connection.

January 2, 1884 (before operation). The patient, aged 29 years, single, belongs to a family free from nervous and mental trouble. She had suffered from excessively painful menstruation, and more or less constant pain in the back since puberty. Both these symptoms have increased in severity, and of late years various nervous symptoms have been superimposed. The patient is now unable to leave the bed, on account of pain and weakness. She has been for some years subject to frequently-recurring convulsive attacks, in which she is sometimes rigid, and sometimes shakes violently. No distinct opisthotonos has been observed. Examination reveals marked diminution of all sensations on the entire right side of the body to the median line. Taste (sugar, quinia) and smell (lemon, vanilla) are entirely wanting on the right. The hearing by the air is less acute on the right, and that by the bone is wanting. The sight is above normal on both sides without glasses, and there is no retraction of the field of vision, nor loss of color perception. The tendon reflex is greatly exaggerated on both sides, the tap causing a violent twitch of the whole body, and great distress. There is some loss of strength in the right arm and leg. There exists a wax-like rigidity of both feet, most marked in the right, the foot resisting forcible movements, but yielding gradually to pressure. Once placed in an awkward position the foot remains so for some minutes without causing the least distress, or even attracting the patient's notice. Attempts to flex the right leg upon the thigh are met by tonic contraction of the quadriceps femoris. The ovarian region is excessively tender on both sides, most markedly so on the left. Palpation shows the left ovary twice the size of the right (Dr. Barss). The patient is anxious for immediate operation, although its nature and dangers are fully understood, the patient being unwilling to undergo the pain of another menstrual period. Both ovaries were removed, without the tubes, January 18, 1884. They were found cystic degenerated. Recovery was rapid, and the patient expressed herself within a week as feeling better than for many years.

My second examination was made March 21, two months after operation. The hemianæsthesia was much lessened, the lightest touch being felt over the entire right side, though not quite so plainly as on the left. The substances which were not perceived at all by smell and taste on the right side before operation were now recognized on that side, though not so easily as on the left. The watch on the temple, previously heard only on the left, was now heard on both sides, best on the left. There was no trace of the wax-like rigidity in the left foot, and that in the right was much diminished, the right foot when bent into an awkward position now falling back directly to a natural one, though not so completely as the left. The reflex spasm of the quadriceps femoris on the right still persisted. The tendon reflex was normal on the left, but still exaggerated on the right, causing a twitch of the whole body, but less marked than before, while the distress caused by the tap was comparatively slight.

The most marked improvement was with regard to the convulsions, previously so severe and frequent, only two light attacks having appeared since the operation. There had been considerable pain in the back and abdomen at the menstrual period, and at this time the patient, at others up and about, was confined to her bed for some days. We cannot, of course, assume that the improvement will be permanent, but the case well illustrates the role which hysteria may play as an indication for operation, and the result up to this time has certainly been most satisfactory.

BOOK REVIEWS.

INJURIES AND DISEASES OF THE JAWS. The Jacksonian Prize Essay of the Royal College of Surgeons, England, 1867. By CHRISTOPHER HEATH, F.R.C.S., Professor of Surgery in University College, Surgeon of University College Hospital, Dental Hospital, etc. Third edition. Philadelphia: P. Blakiston, Son & Co. 1884. Pp. 480. Price, $4.50.

The third edition of this standard treatise is not markedly changed in form or in size. It is, upon the whole, more carefully written, and contains a chapter on Diseases of the Temporo-Maxillary Articulation, which is a new topic. Tumors of the jaws are far more intelligently and satisfactorily classified in this edition, and this whole important subject is revised in the light of recent pathological research. In other words, microscopical study of the various new growths of the jaws is made the basis of their classification. Chapters XIV to XXV—nearly one-half the entire work—are devoted to the various tumors of the gums and jaws.

This constitutes the portion of the book to which the general surgeon would turn for special information. Specialists in oral surgery, aside from mere

dentistry, are now to be found in the larger cities. This is not a work on dental surgery.

A chapter on Fracture of the Lower Jaw, another on its treatment, another on the complications, and separate chapters on fracture of the upper jaw, and also on dislocations, occupy 100 pages in the beginning of the book.

This will serve as an indication of the fulness with which these topics are treated. It is needless to add that not even Hamilton's standard work on Fractures and Dislocations gives the injuries of the jaw one-half this space. We commend this work to general practitioners.

E. W. A.

STATE MEDICINE.

HEALTH IN MICHIGAN, AUGUST, 1884.

Reports to the State Board of Health, Lansing, by observers in different parts of the State, show the diseases which caused most sickness in Michigan during the month of August (4 weeks ending Aug. 30), 1884, as follows:

Number of Weekly Reports Received, 205.		For Preceding Month.
Diseases Arranged in Order of Greatest Area of Prevalence.	Per Cent. of Reports Stating Presence of Disease.	Per Cent. of Reports Stating Presence of Disease.
Diarrhœa	88	72
Intermittent fever	72	93
Rheumatism	68	68
Neuralgia	60	66
Consumption of lungs	60	63
Cholera morbus	50	39
Bronchitis	49	47
Dysentery	48	29
Remittent fever	44	45
Cholera infantum	42	27
Tonsillitis	35	34
Erysipelas	32	28
Influenza	30	28
Inflammation of bowels	26	20
Whooping-cough	23	27
Typho-malarial fever	22	10
Inflammation of the kidney	20	24
Diphtheria	14	8
Typhoid fever	12	7
Scarlet fever	11	11
Pneumonia	10	15
Inflammation of brain	10	9
Puerperal fever	9	7
Cerebro-spinal meningitis	8	6
Membranous croup	5	5
Measles	5	8

For the month of August, 1884, the reports indicate that diarrhœa, cholera infantum, typho-malarial fever, cholera morbus, and dysentery increased in area of prevalence.

Compared with the average for the month of August in the six years, 1877–1882, erysipelas, rheumatism, and bronchitis were more prevalent, and remittent fever, intermittent fever, dysentery, and cholera morbus, were less prevalent in August, 1884.

For the month of August, 1884, compared with the average of corresponding months for the six years, 1879–1884, the temperature was lower, the absolute, and the relative humidity, and the day ozone were less, and the night ozone more.

Including reports by regular observers and others, diphtheria was reported in Michigan in the month of August, 1884, at 27 places, namely: Alamo, Armada, Alpena, Au Sable, Bloomfield, Birmingham, Berlin, Detroit, East Saginaw, Flint, Grand Rapids, Groveland, Holly, Ishpeming, Kalamazoo, Leland, Maple Rapids, Manistee, Monroe, McBride, Northville, Oakland, Pontiac, South Haven, Summit, Vassar, and Warren; scarlet fever at 20 places,—Albion, Au Sable, Armada, Bridgetown, Cadillac, Columbiaville, Clayton, Detroit, Dorr, Fairfield, Grand Rapids, Hastings, Hazleton, Ionia, Jasper, Kalamazoo, Novi, Stanton, Swartz Creek, and Sand Beach; and measles at 10 places,—Detroit, Grand Rapids, Grand Haven, Kalkaska, Kalamazoo, Ludington, Manistee, Muskegon, South Haven, and Whitehall.

HENRY B. BAKER, Secretary.

Lansing, Sept. 12, 1884.

NECROLOGY.

GERRISH, JAMES W. F., M.D., was born in Monmouth, State of Maine, February 12, 1831, and died at his residence in Seymour, Ind., August 4, 1883, and was, therefore, at the time of his death, in the 52nd year of his age.

His father was successively a teacher and a physician. Dr. Gerrish received his early education in a school taught by his father in his native town, and when, with the tide of emigration that set in for the great West, his father moved to Indiana, he accompanied him. It was not until about 20 years of age that he decided to adopt the medical profession as his life-work; but the decision once made, with that promptness, energy and industry that were distinguishing characteristics of his after-life, he applied himself to study in the office of his father some two years, and then entered college in Cincinnati, Ohio, where he graduated in 1855.

Upon the completion of his studies he located in Paris, Ind., and at once entered into practice. A man of his talent and skill could not long remain unknown, and when the war of the rebellion broke out he was doing a large and lucrative practice. Dr. Gerrish was not wanting in patriotism. When the State equipped and sent to the front the Sixty-seventh Regiment Indiana Volunteers, a regiment holding a high and honored position in the annals of the war, he accompanied it as Assistant Surgeon, but was soon promoted to the rank of Surgeon to the regiment. Through that dark and bloody ordeal he shared the varying fortunes of "the boys in blue," holding many positions of honor and trust, being at one time in charge of the General Hospital of the Thirteenth Army Corps, only returning to his home in 1864, when failing health would no longer permit him to do duty in the field. After his return he located in Seymour, and at once entered upon a large and lucrative practice, which continued until his death.

As a physician Dr. Gerrish was very successful, being careful, patient and kind; but it was as a surgeon he was most extensively known. Skilful in a remarkable degree, possessing a most thorough knowledge of his art, a keen discrimination, a steady hand, self-re-

liant, he performed, in his twenty-eight years of constant practice, scores of capital operations, among them some of the most difficult and dangerous. A constant reader, nothing new or useful escaped his notice, and he discarded nothing worthy of a place among the remedies or agencies of the healing art.

He was an active member of the Jackson County Medical Society, the Mitchell District Medical Society, the Indiana State Medical Society, and one of the founders of the Tri-State Medical Society, of which he was in 1877 Vice-President, and a permanent member of the American Medical Association, and an honorary member of the Southwestern Kentucky Medical Association. To the literature of some of these bodies he was a valued contributor, and at all times took a deep interest in their deliberations.

As a man the memory of Dr. Gerrish will long be cherished in the hearts of those who knew him, for his goodness and philanthropy. He possessed in the fullest degree that fellow-feeling for the race that made him wondrous kind.

In the later years of his life he was brought by the force of circumstances to occupy a new and special field of usefulness. He fell in with the current of thought and effort which was carrying forward a popular movement in the temperance reformation. With his characteristic earnestness and decision, "with malice toward none and with charity for all," he espoused this cause. For several years past he was at the head of a strong local organization in the city of Seymour. His presence at their meetings, his wise counsels and sympathetic addresses to his friends and neighbors, soon gathered around him a large and efficient membership in what is widely known as the "Seymour Reform Club." At the time of his death he was the President of this Club, and of the Grand Temperance Council of Indiana, both of which were, in reality, his foster children. About two years ago he decided to go a step further and higher in the scale of reformation. He made a public profession of religion, and united himself with the First Presbyterian Church of his home. From the time of entering the Master's service until his death he was a worthy and consistent member of the church, an untiring worker in the Master's vineyard, a tried and true follower of the banner of the cross, and he died in the hope and full belief of an immortality beyond this world, and a place in that "house not made with hands, eternal in the heavens."

Facts furnished by Samuel H. Charlton, M.D., Seymour, Ind. L.

JULIUS COHNHEIM.—The closing days of the International Medical Congress were saddened by the announcement by Prof. Virchow, in the Section of Pathology, of the death from gouty nephritis, in Leipzig, on August 14, of his distinguished pupil, Prof. Julius Cohnheim. A telegram of condolence was immediately sent to his widow by the Section.

Prof. Cohnheim was born in Demmin, in 1839, and studied medicine from 1856 to 1860 in Berlin, Würtzburg, Greifswald, and Prague. He commenced to practice in Berlin, but was appointed, in 1864, assistant to Prof. Virchow in the Pathological Institute, when he entered upon a new life. In 1868 he was appointed Ordinary Professor of Pathological Anatomy in Kiel. He soon left Kiel, however, to succeed Waldeyer in Breslau. His work here was probably the most brilliant and fruitful of his whole life; so much so, that he was called to the Pathological Institute, in Leipzig, on the occurrence of the first vacancy. His name will chiefly be remembered for his contributions to the doctrine of inflammation. His discovery of the migration of the white blood-corpuscles through the walls of the capillaries in inflammation is his chief title to fame. It is too early, says the *Deutsche medicinische Wochenschrift*, to estimate the great influence of his work, and we can only know that in his death practical pathology has sustained an irreparable loss, even though in his "Vorlesungen" he has left a work, for him an enduring monument, which combines physiology and pathology to one extent never before attained. Few more important truths have been formulated in medicine than Cohnheim's, "without blood-vessels no inflammation is possible."—*Medical News.*

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.
Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM SEPT. 6, 1884, TO SEPT. 12, 1884.

Greenleaf, Chas. R, Major and Surgeon, to conduct a detachment of recruits to the Department of the Columbia, and upon completion of this duty rejoin his station, Columbus Barracks, Ohio. (S. O. 210, A. G. O, Sept. 6, 1884.)

Gorgas, W. C, First Lieutenant and Assistant-Surgeon, assigned to duty at Ft. Randall, D. T. (S. O. 98, Dept. of Dakota, Sept. 5, 1884.)

Egan, P. R., First Lieutenant and Assistant-Surgeon, when relieved by Assistant-Surgeon Fisher, to report at Ft. Lowell, A. T., for duty as Post Surgeon. (S. O. 82. Dept. of Arizona, Sept. 2, 1884)

Fisher, W. W. R., First Lieutenant and Assistant-Surgeon, assigned to duty at Ft. Apache, A. T., relieving Assistant-Surgeon Egan. (S. O. 82, C. S., Dept. of Arizona.)

Ewing, Chas. B., First Lieutenant and Assistant-Surgeon, assigned to duty as Post Surgeon at Ft. Stanton, N. Mexico. (S. O. 177, Dept. of the Missouri, Sept. 6. 1884.)

McCaw, W. D., First Lieutenant and Assistant-Surgeon, (recently appointed), to report in person to the Commanding General Department of the Missouri for assignment to duty. (S. O. 209, A. G. O., Sept. 5, 1884.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING SEPTEMBER 13, 1884.

Surgeon T. C. Heyl, September 8, 1884, from the "Adams," and to the R. ship "Independence," Mare Island, California.

—THE—

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ORIGINAL ARTICLES.

LACERATIONS OF THE FEMALE SEXUAL ORGANS CONSEQUENT UPON PARTURITION; --THEIR CAUSES AND THEIR PREVENTION.

BY S. D. GROSS, M.D., LL.D., D.C.L. OXON., L.L.D. CANTAB., EMERITUS PROFESSOR OF SURGERY IN THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

Read before the Section on Obstetrics and Diseases of Women, American Medical Association, May, 1884.

My object in appearing before you, as stated in the programme, is to read a paper on lacerations of the female sexual organs consequent upon parturition. It may seem odd, if not impertinent, to those of you who do not know me intimately, that I should venture to discourse upon such a subject so essentially in the hands of specialists; but they will perhaps pardon me if I tell them that, although I have all my professional life, now extending over a period of fifty-six years, been a general practitioner, yet during the first third of a century of that life I was more or less extensively engaged in obstetric practice; while during the last third I have had more or less to do almost daily with the treatment of female diseases requiring the use of the speculum and operative interference of various kinds. I have performed ovariotomy, and on numerous occasions sutured the perinæum and the vesico-vaginal septum with a degree of success, if not highly flattering, at all events respectable. Within a short time after my entrance into the profession, I translated Hatin's *Manual of Obstetrics*, a small volume which had an extensive circulation in its new dress; in 1839 I contributed several pages in my work on *Pathological Anatomy on Uterine Moles*, founded upon original observations and dissections; and in 1854 I unearthed, after much labor and research, Ephraim McDowell's claims to the fathership of ovariotomy, up to that period generally ascribed to other sources. Moreover, as a writer on systematic surgery, compelled to keep abreast with the knowledge of the times, I have embodied in my treatise an elaborate chapter on the diseases and injuries incident to the genital organs of the female sex, reflecting, at least in some degree, an outline of the existing state of the science. I make these remarks, in anticipation, as a justification for bringing before the Section a subject which, in some of its relations, has been so often and so elaborately discussed by many of the ablest men all over the civilized world. I might have taken my budget before the Surgical Section, but believing that fairer justice would be meted out to it here, I have given it this direction. When I shall have finished my task I trust you may not be able to say with Appeles, "*Ne sutor ultra crepidam;*" but rather incline to Tacitus, "*Nihil scriptum miracuti causa.*"

It is astonishing how much has been written on the treatment of these lesions, and how little has been said upon their causes and prevention. Operations almost innumerable have been devised for their relief; volumes have been written upon the subject, and everywhere, in town and city, the gynæcologist is ready to offer his services in sewing up lacerations of the genital organs of maltreated and unfortunate women. Seldom do we hear the voice of any of them raised in behalf of preventive measures, and then only in an indirect or roundabout manner. I am here this evening, not to wrestle with shadows or imaginary demons, but with stern realities, and to speak the truth, the whole truth, and nothing but the truth, as I understand it. The time has arrived when this matter should be met in a bold and fearless manner.

The lacerations of which I desire to speak are those which affect—(1) the perinæum; (2) the vesico-vaginal septum; (3) the recto-vaginal septum; (4) the neck of the womb; and (5) the urethra, or mouth of the urethra and of the vagina. A few remarks under each of these heads will suffice for my purpose.

Laceration of the perinæum is of frequent occurrence, and cannot always be avoided even under the most judicious management. In primiparæ, the fourchette is almost invariably ruptured, especially when the tissues are unusually rigid, and the protruding structures are very large, or very rapid in their descent, or where the perinæum is not properly supported. Fortunately, such an occurrence is of little moment, as it respects the patient's welfare, either present or prospective. But it is very different when the rupture is extensive, involving a large portion of the perinæum, or perhaps extending—as not infrequently happens—through the sphincter muscles of the anus and the lower extremity of the vagina. Then such an accident constitutes a great evil, and demands more or less skill for its cure.

Lacerations of the vesico-vaginal septum are among the saddest of calamities, entailing, if not

successfully remedied, endless suffering upon the poor patient. I know of nothing more calculated to excite our sympathy, or to enlist the noblest qualities of our nature. In the worst forms of such accidents, in which science and skill offer no relief, as occasionally happens even in these enlightened days, death would be a welcome visitor. Equally distressing is a recto-vaginal fistula, or a rent with loss of substance in the urethra.

Lacerations of the neck of the uterus, even when comparatively slight, often entail great suffering, local and constitutional; the former manifesting themselves in various kinds of pains and discharges, and the latter in almost every form of nervous disorders of which it is possible to form any conception, together with more or less derangement of the digestive and assimilative organs. Of the frequency of these accidents, an idea may be formed when I state, what has long been known to most of you, that one of our most distinguished native writers on gynæcology has expressed his conviction that rupture of the neck of the uterus, in greater or less degree, is almost inseparable from a first labor. Whether Dr. Emmet is correct in this conclusion is a question which remains to be determined. If it be true, it would inevitably go to prove that God has made woman much less perfect than the world has given him credit for. As childbirth is one of the special prerogatives of woman, designed to perpetuate the race, there is something peculiarly distressing in such an idea. Looking at the matter from a practical standpoint, one would naturally conclude that the Author of our being had constructed the womb with special care to protect the organ, at least as a rule, against the possibility of a contingency fraught with such sad consequences. If we assume the correctness of Dr. Emmet's statement, we may well wonder, without irreverence, why Almighty God did not create simultaneously with woman a competent gynæcologist, ready to meet this inevitable evil, for such unquestionably it must be whenever it occurs. If this evil is the outgrowth of civilization, then the sooner we get rid of this civilization the better will it be for our poor wives and daughters, considered as procreating beings.

It was a happy circumstance when, in 1851, Sir James Y. Simpson first called attention to this important subject. It was like the discovery of a new world in human progress. In the *Proceedings of the Edinburgh Obstetrical Society*, for January of that year, he proclaims the important truth, until then unknown, or only guessed at, that fissuring and laceration of the cervix are not, as had been generally believed, rare lesions during labor, but, on the contrary, very common occurrences, especially in primiparæ, and he supports his views, not only by what he saw with the aid of the speculum, but by an appeal to autopsies in which rents and fissures were detected in the mouth and neck of the uterus after natural labor. The facts thus pointed out by the great Scotch professor were afterwards—namely, in 1869, and again in 1874—brought more fully before the profession by Dr. Emmet, in two important papers published in the *American Journal of Obstetrics*, where they soon attracted general attention. To these two distinguished men, then, are we mainly indebted for the knowledge which we now possess upon this important subject; knowledge of priceless value to suffering woman, and of the greatest consequence to the obstetric practitioner.

If we inquire into the exciting *causes* of these accidents, it will be found that they vary with the situation and structure of the parts involved in them. The great factor in laceration of the perinæum is parturition, either alone or in conjunction with the means employed to effect it. When this wall to the outlet of the pelvis is very rigid, and the action of the uterus unusually vigorous, forcing down the head of the child with great vehemence, it is easy to conceive not only of the possibility, but of the great likelihood of such an accident, especially in the absence of proper support. In such a condition the perinæum is very much, to use a figurative expression, in the position of the door of a room, with a big, burly fellow on the inside, knocking for egress. To carry out the simile, he does not in every case batter down the whole of the opposing obstacle, but only a portion of it, representing a comparatively slight laceration, as where the fissure is limited to the fourchette, or to the anterior portion of the perinæum, while, when the resistance is extreme, the entire wall is torn, the lesion extending, through the sphincter muscles, into the rectum; in other words, the entire door is battered down, and the vagina and bowel are laid completely open.

Of the various kinds of lacerations of the vagina, or of the vagina and the uterus, constituting what are known as fistulæ of the bladder, or of the rectum, those dire calamities which form so prolific a field for operative interference, the most common factor unquestionably is either prolonged or very severe pressure. "This is," says Thomas, in his able work, "beyond all doubt, the most prolific source of the accident, though it may also attend a rapid labor in which the vagina has been pressed against some point of the pelvis with great violence." The active agent of this pressure is generally the child's head, especially when it is disproportinately large or wedged in behind the pubic symphysis, unduly compressing the vesico-vaginal septum, followed by destructive inflammation and sloughing. The accident is generally the result of protracted pressure, as when the child's head has been wedged in in this position for many hours, neither, perhaps, receding nor advancing; or it may be caused in a very short time, as when the pressure is unusually concentrated and severe. If the pains are very violent, the pressure of the presenting parts may be so great as to end in actual rupture of the vesico-vaginal septum, but, as a rule, the opening is the direct result of concentrated pressure, eventuating in inflammation and sloughing, precisely as in an ordinary bedsore. Vesico-vaginal fistulæ are not infrequently produced by the pressure of the child's head upon a distended bladder. How far the maladroit use of the forceps, vectis, or other instruments may be capable of producing such lesions, will form the subject of future inquiry.

The principal causes of lacerations of the cervix

are precipitate labor, labor attended with rigidity of the mouth of the womb, and instrumental labor. Lacerations are not uncommon in breech cases, in which delivery is obliged to be expedited on account of the retained head before the cervix is properly dilated. These are unquestionably the most frequent and efficient factors in the production of accidents in this situation. If to these we add the presence of cicatricial tissue in the cervix, malpresentations, and section of the cervix, as occasionally practised by ignorant obstetricians, we have a complete list of all the causes, active and predisposing, of rupture of the uterus during normal parturition. A premature discharge of the amniotic fluid acts mainly, I presume, as a means of retarding labor than as a cause of laceration of the cervix. I must not omit to allude here to a statement of Dr. Emmet that laceration of the cervix is of frequent, if not common, occurrence in cases of criminal abortion. I do not know that this fact has been noticed or verified by other observers, but of its truth I entertain no doubt. In his tables, Dr. Emmet gives ten cases of this kind, and he declares that he has met with this accident in every instance where the woman admitted the fact of exposure to malpractice.

Having thus briefly discussed the situation and causes of the accidents in question, let us, in the next place, inquire into the best means of preventing them, the chief object which I have had in view in bringing this matter before you to-day. There is more honor in one ounce of preventive midwifery than in one pound of curative gynæcology, the outgrowth of ignorant or meddlesome obstetric practice. That many of these occurrences are inevitable without any just blame attaching to the professional attendant is well known to every practitioner of the least experience, but that they may, as a rule, be prevented by the exercise of proper care and skill will, I think, be readily admitted; at all events it is true.

The great remedy, as laid down in the books, for rigidity of the perinæum is manual support during the descent of the child's head, or whatever else the presenting parts may be; this, as a rule, is quite sufficient; but not so when the resistance is very great. In this event, the accoucheur is expected to make use of the hot bath and of hot fomentations, to anoint the parts with oil, and even, in extreme cases, to make slight incisions on each side of the middle line. Nothing is said in these injunctions of the abstraction of blood as a means of relaxing this tense, resisting wall which so obstinately stands in the way of the completion of the parturient process. What are the active agents of this resistance? Unquestionably the muscles of the perinæum, the sphincters of the vagina and anus, the transverse muscles, and the elevator muscles of the anus. The skin and connective tissue offer no obstacle. The whole difficulty resides in the muscles, and its amount is precisely in proportion to their development, great in strong, young, robust women, and comparatively slight in those of an opposite character. If this statement be correct, and no one can doubt it, it follows, as a necessary corollary, that the obstacle is most readily overcome by some measure that will relax the perineal muscles. Hot water, oil, and medicated unguents will not do this, and no sane man would wait for the tardy and uncertain effect of local bleeding. A far better plan is to take blood at once from the arm from a free orifice in one of the large veins, the patient sitting up in bed during the operation, so as to produce the most rapid and decided impression at the least expense of the system. If there be anything better than this, anything more likely to answer the purpose, I am not aware of it. The loss of ten, twelve, sixteen, or even twenty ounces of blood can do no harm in such a condition of things. A few days under proper treatment always suffice to replace it, while, as a rule, it promotes rather than retards recovery, by rendering the woman less liable to puerperal fever, peritonitis, and pelvic cellulitis.

In regard to lacerations of the vesico-vaginal septum, much may be done in the way of prevention, and so also in regard to rents into the rectum. It is self-evident that anything that lessens the size of the canal through which the child is to pass, or that seriously interferes with the descent of the child's head, must act as an impediment to delivery. All obstetric teachers are aware of this fact, and hence they take special pains to instruct the young practitioner to see that the rectum is well emptied during the latter stages of pregnancy, or, at all events, on the approach of labor, and that the urine is evacuated from time to time as the labor progresses. These precautions are unquestionably most important safeguards, and, if duly attended to, are rarely followed by serious injury. If, on the contrary, they are neglected, as I fear is not infrequently the case, especially among the lower classes of women, it is easy to conceive that the consequences must be of the most direful nature, especially if, superadded to these obstacles, there is an impacted condition of the child's head along with violent uterine contraction. Under such circumstances it is difficult to conceive how the poor patient could escape injury in some form or other. The machinery must break down somewhere. A few hours may suffice to do the mischief. The only remedy, of course, is the forceps or crotchet, and the former cannot be applied too soon. The bladder must be liberated, or a vesico-vaginal opening, if not something worse, will be the inevitable result.

The proper remedy for the relief of the stationary head, whether impacted or simply arrested by the inertia of the womb, is—provided the cervix is sufficiently dilated, or dilatable—the forceps, that "noble instrument," as it was called by Chapman, who, in 1733, published the first account of it, upwards of one hundred years after its invention by Paul Chamberlen, of England. I shall not speak of the numerous modifications which this valuable instrument has experienced in the hands of the obstetricians, or detain you by asking whether the long instrument is preferable to the short, or the short to the long. In the hands of the judicious practitioner, each has a distinct and separate value; but it will be pertinent to the object of this paper to inquire into the reasons which have led to the great changes which have taken place in regard to the frequency of its use.

Beginning with the great Baudelocque, the most

illustrious accoucheur of the last century, we find that he applied the forceps once in 561 cases; Clark in 728; Collins in 617; Lachapelle in 293; Baer in 274; Boivin in 214; Davies in 53; Naègle in 31; Kluge in 16; Carus in 14, and Siebold in 7.[1] Smellie, who flourished in the middle of the last century, and who was the most famous accoucheur in his day in Great Britain, applied the forceps once in 125 labors; and Merriman, another distinguished English obstetrician, once in 93.

From the late Dr. Churchill, of Dublin, we learn that in Great Britain, until recently, the forceps were employed once in 249 cases; in France, in 140; and in Germany, in 106.

In this country, the present fashion is to apply the forceps very frequently, both in private and in hospital practice. Some of my friends inform me that some accoucheurs resort to the instrument as often as once in four labors; others in 6, 8, or 10. Whether the forceps are employed as often in Great Britain and on the Continent of Europe, I am unable to say; but the difference, if any, must be very trifling.

Dr. William P. Dewees, who was the great Philadelphia accoucheur in his day, and who delivered upwards of ten thousand women, writing in 1843, holds the following language in regard to the use of the forceps: "However strongly I may be impressed with the utility of the forceps, I should not feel myself warranted to use them as often as they appear to be in Great Britain and on the Continent of Europe. The frequency with which they have been employed in some instances is really alarming, and, I had like to have said, must have been too often unnecessary. In my own proper practice, I have not employed them oftener than once in 350 cases, though I have been under the necessity of using them very frequently in the practice of others."[2]

Notwithstanding that Dewees so seldom employed the forceps in his own cases, we nowhere find that he had any serious lacerations of the genital organs. In the tenth edition of his *Treatise on the Diseases of Females*, published in 1854, "with the author's latest improvements and corrections," not one word is said upon the subject, not even upon rupture of the perinæum. Now, if such accidents had occurred under his observation he could hardly have failed at least to mention the fact. If I am told that Dewees did not use the speculum, and could, therefore, not detect them, I reply that he had eyes to see, and fingers to feel. He certainly could tell what the nature of the case was when urine or fecal matter flowed off by the vagina. Philadelphia's great accoucheur, Dr. Ellwood Wilson, has superintended, as he informs me, 10,600 cases of labor at the Lying-in Hospital in that city, without the occurrence of a solitary instance of vesico-vaginal, or recto-vaginal fistula. He, like others engaged in large private practice, has witnessed numerous atrocities in consultations. The testimony of my late colleague, Professor Ellerslie Wallace, is precisely of the same import.

In a discussion of the admirable paper of Dr. Emmet, "On the Necessity for Early Delivery, as Demonstrated by the Analysis of 161 Cases of Vesico-vaginal Fistula," read before the American Gynæcological Society, in 1878, Dr. D. Humphrey Storer declared that, in an experience of several thousand cases of midwifery, he had witnessed only two cases of vesico-vaginal fistula, adding that there was no man in Boston who applied the forceps less seldom than he. He approved of the employment of the forceps in certain conditions of labor, "but the idea," he remarks, "that the forceps is an instrument which must be almost constantly used is, I think, a dangerous one." This sentiment was elicited by the statement of Dr. Emmet that the great factor in the production of vesico-vaginal fistula is impaction and long detention of the child's head, aided by distension of the bladder, and the assertion that instrumental delivery has rarely, if ever, any agency in the production of this sad occurrence.

Dr. H. P. C. Wilson, of Baltimore, on the same occasion, asserted that he had made it a rule for many years, when called to a case of labor, to carry with him a bottle of chloroform and a pair of forceps, adding that he had frequently used the forceps when he was certain that the woman would be delivered safely by nature, simply to shorten the labor and to relieve suffering. Dr. John L. Atlee, in referring to Dr. Wilson, said, "the older I grow the more apt I am to employ the forceps." In opposition to these sentiments, I take leave to cite the views of America's latest writer on obstetric medicine, Dr. Lusk, as expressed in his admirable treatise, *The Science and Art of Midwifery*, the second edition of which was issued only a few months ago. "I can only say," declares this excellent author, "that, with increasing experience, my own practice has grown more and more conservative, and my own belief is that true wisdom requires us to abstain from even trivial operations, so long as nature is able to do her work without our assistance."

Is it not a fact, I would ask, that the forceps are often used merely as a means rather to save the time of the accoucheur, than as a means to prevent the suffering of the poor woman; to enable him to meet another engagement, to visit the theatre, or to attend a dinner or an evening entertainment? Passing along the streets, not long ago, said Dr. Goodell to me a few months since, my eye lighted upon a gentleman walking rapidly on the opposite side, who, the moment he recognized me, shook his green bag at me, exclaiming, "reed-birds for supper," and hurried on.

I take leave here to quote what I deem eminently pertinent to this part of my paper, a passage from a communication that appeared in the New York *Medical Record*, March 8th of the present year, from the pen of Dr. A. E. Dugas, of Augusta, Georgia: "When I graduated in 1875, an old sage in the profession advised me as follows: 'My boy,' said he, 'I am an old man; I have practiced over fifty years, and, as you are aware, have been very successful. In regard to your labor cases, I would give you the following advice: First, as you intend practicing in the city, make it a habit of leaving

[1] Robert Lee's Table, in Lectures on Midwifery.

[2] Midwifery, p. 292.

your forceps at your office, for if you ever require them, you will always have ample time to send for them, and your not having them with you may save some women much trouble. Second, do not examine your patient much or often; see that things are right, and then let nature manage the case.' "

The "old man" here alluded to is no less a personage than the great and venerable Dr. Louis Alexander Dugas, a man of vast experience as a practical surgeon and accoucheur, and emphatically one of the sages of our profession. How wise such advice is in contrast with the accursed practice of the day, when every obstetrical fledgeling thinks himself competent to use the forceps, and is anxious to get to his "reed-bird supper," I leave you to judge.

If all accoucheurs were well educated and well versed in the use of the forceps, there might be some justification for the frequency with which they are applied at the present day. There might even be some justification in hitching them on the child's head, when nature is fully equal to her task, to get home in time to a good supper; but to use them on the slightest pretence, as is so often done now-a-days by every sciolist, hardly out of his swaddling-clothes, is, if you will allow me to say it, simply damnable. Surely our obstetric teachers have a great deal to answer for in sending forth every year armies of incompetent young accoucheurs. Surely they commit a grave sin when they teach the frequent application of this "noble instrument," employed far too seldom in former times, as it is certainly employed too often in ours. In conversing recently upon this subject with a distinguished obstetric teacher, now retired, he said to me, "I always enjoined it upon my pupils, after pointing out to them the uses and abuses of the forceps, to carry the instrument with them to every case of labor, adding that it was just as important as it is for the mariner to carry his compass with him to sea." Without wishing to disparage the judicious use of the forceps, which I have no right to do, and which God forbid I should do, I think a careful consideration of the case justifies me in endorsing the opinion of Baudelocque, uttered more than a century ago, that the forceps, as generally used, have done more harm than good, and in this view I am glad to be able to say that I am sustained by many eminent, able, and experienced obstetricians and gynæcologists of the present day.

That many accidents happen for the want of a proper use of the forceps, or of their timely application, is proved by the numerous cases of vesico-vaginal and other fistulæ, and by the still not infrequent sacrifice of the child, if not also of the mother; of the former by fatal compression or craniotomy, and of the latter by exhaustion, heart clot, pulmonary obstruction, or other causes. It would be difficult to find in all the records of obstetric medicine a case which more sadly and forcibly illustrates the baneful effects of the want of the proper use of the forceps than that of the Princess Charlotte, whose death, in 1817, threw the whole British nation into mourning. The amniotic liquor had been discharged early in the labor, and although the head had long been in the lower strait, the delivery, which took place at the end of fifty-two hours, was intrusted entirely to nature's efforts. No wonder that the child was still-born, and that the poor woman, exhausted by her protracted labor, expired soon after her delivery. No wonder that her principal accoucheur, Sir Richard Croft, committed suicide as the best remedy for his sad blunder and consequent mortification!

I come, in the third place, to inquire briefly into the proper preventive treatment of lacerations of the cervix. We have said that these injuries are most common, by far, in primiparæ, especially when pregnancy occurs in women somewhat advanced in life. Spiegelberg found that the average duration of labor in 506 primiparæ was 17 hours, and 12 hours for multiparæ. After the thirtieth year, the duration is materially increased, amounting, according to Hecker, in primiparæ, to twenty-one hours, and, according to Ahlfeld, to twenty-seven hours.[1] If we ask what is the cause of this difference in the duration of labor in primiparæ and multiparæ, we shall find a ready answer in the difference in the pliancy and softness of the genital organs, and in the fact that the way is paved by the previous parturition. In primiparæ, especially in elderly ones, the genital organs are hard, firm, inelastic, unyielding; in multiparæ, on the contrary, they are comparatively soft and dilatable, yielding readily before the advancing head. In the one case the labor is comparatively easy, rapid, and safe, both to mother and child; in the other, painful, protracted, and fraught with danger; the uterus and perinæum, not to mention the vaginal septa, are liable to be torn, and the child often perishes from injury inflicted upon its head and lungs. If, in such a labor, delivery be attempted with the forceps before the parts are properly relaxed, or if attempts be made to dilate the parts forcibly with the fingers, it is easy to perceive that rupture, of a more or less serious nature, must inevitably happen.

Since the attention of accoucheurs was first directed to the frightful frequency of lacerations of the cervix in primiparæ by Simpson and Emmet, the subject has assumed a degree of importance previously undreamed of, and the question naturally arises here: How are these injuries to be avoided? How are we to abridge the duration of labor in primiparæ, and to place them on the same level with the multiparæ? There is but one way to accomplish the object, and that is by the employment of relaxing agents. It is a well-known fact that labor is more easy in hot than in cold climates, a circumstance that would naturally lead us to employ hot applications, as the hot bath, hot fomentations, and hot injections. I will not deny that such agents might occasionally do good, but what sense is there in parboiling a woman when we have at hand other agents far more speedy and more efficacious in their action. I do not allude here to chloral, ether, chloroform, and tartar emetic, the latter of which, from its tendency to produce vomiting, could hardly in any case be a safe remedy, while the former, with some advantages, would seldom prove reliable to bring about the desired result. The great remedy which I have in my mind's eye is vene-

[1] Lusk, Science and Art of Midwifery, p. 134. Second Edition, 1884.

section, carried to a reasonable but sufficient extent to relax the system and through the system the genital organs. I do not introduce this as a new remedy, for general bleeding to overcome rigidity of the uterus and perinæum was practiced long ago, and is still practiced by many of our older physicians under such circumstances; but I desire to recall attention to it as the most prompt, powerful and efficacious of all the agents that the accoucheur can press into his service for the attainment of this end. I am not abashed if I am told, at the very threshold of this announcement, that venesection is an obsolete art, that none but old fogies would think of employing it, and that the blood during pregnancy undergoes such great changes as to render the loss of it, except in puerperal convulsions, an improper expedient during labor with a view of expediting it.

There was a time when this agent was very generally, I had almost said, universally used, even in my early days, in great rigidity of the sexual organs; fortunately, that day has gone by. But if the lancet was used too much then, it is certain, at least to my mind, that it is not used enough now. We are too apt, as a profession, to be influenced by prejudice, especially when it is backed by great authority. When the wether jumps, the rest of the flock are sure to follow. I recollect when it was customary to bleed pregnant women for the relief of headache, dizziness, or vertigo, pulmonary congestion from aortic obstruction, and pelvic and sacro-lumbar pains. The "false pains," as they are termed, often so harassing and worrying as to be a source of real suffering, may generally be promptly relieved by the abstraction of eight, ten, or twelve ounces of blood; and who would not bleed, bleed freely, when a plethoric pregnant woman is threatened with convulsions? To withhold the lancet in such a condition would simply be criminal, and yet some obstetricians, even of world-wide renown, would content themselves with the exhibition, in such an event, of chloroform, of chloral hydrate, or of both articles combined.

If I be told that a pregnant woman should not be bled because, while in this condition, she experiences a marked decrease of the red corpuscles of the blood, I answer that this would be simply begging the question. If this were the only change which this fluid undergoes to meet the physiological necessities of the system during utero-gestation, there might be some reason for such a conclusion. But this is not the fact, for, while there is a marked diminution of red globules, there is also a marked increase of fibrin and albumen, assimilating the mass of this fluid to the condition in which it is found to be in inflammation. Instead, therefore, of using these changes as an argument against the use of the lancet, they afford the strongest possible evidence in favor of it whenever a powerful relaxant is required to facilitate parturition. May plethora not be caused by the presence in the blood of an undue proportion of its fibroid, albuminoid, and aqueous constituents? Blood is formed rapidly in pregnancy, to meet the demands of the system, and it is not at all necessary to perform experiments on bitches to prove what daily passes under our observation in the human subject. The great strength, the exuberant health, the florid cheek, and the genial warmth diffused throughout the entire system, sufficiently attest the presence of an active circulation, with an abundance of red globules, although they may be relatively fewer than in the non-pregnant state. No rational accoucheur would bleed an anæmic woman, or a woman laboring under cardiac disease, aortic insufficiency, chronic malarial fever, or any wasting malady whatever. Such affections point out their own remedies—supporting, and not depleting measures.

There is an idea, almost universally prevalent, that the people of the present day do not bear loss of blood as well as they did forty, or even twenty, years ago, an opinion which has exerted such an influence upon medical men, as well as upon the public at large, that venesection has become an obsolete operation, or an operation which is, at most, limited to a few old fogies—as they are sarcastically styled—ignorant of the benign progress of the healing art, and of the tolerance of the system. Whether this opinion be true or erroneous, this is not the time or place to inquire; suffice it to say that my solemn conviction is that the neglect into which this operation has fallen, not only in midwifery, but in general practice, is the cause, annually, of the loss of thousands upon thousands of human lives that might otherwise be saved.

If I were asked under what circumstances a pregnant woman, in sound health, without any complications, ought to be bled, I should answer, first, when she is threatened with abortion, miscarriage, or convulsions; secondly, when there is a rigid os, obstinately refusing to yield after the labor has been in progress for six, ten, or twelve hours; thirdly, as a rule, in tardy labor in primiparæ, especially after the age of thirty; fourthly, where there is, so to speak, rigidity of the general system, including, of course, the sexual organs; fifthly, when there is a decidedly feverish condition of the system, associated with severe headache, great heat and dryness of the genital organs, a rigid os, or os and perinæum, and inefficient, teazing labor-pains; and, lastly, in torpor of the uterus from the effects of inflammation, gout, or rheumatism, interfering with or retarding delivery. In all, or, certainly, in most, of these conditions, I should follow up the effects of the bleeding with an anæsthetic, or a hypodermatic, injection of morphia. I solemnly believe that, if these rules were properly observed, the process of parturition would be greatly facilitated, the pains of labor materially abridged, and the risks of lacerations, which now stand as such a blot upon obstetric practice, would be reduced to the merest minimum, not to say anything about the much greater safety of the child, and the more rapid recovery of the mother.

As to the quantity of blood to be abstracted, every case must be met on its own merits. While in some instances the loss of a few ounces may suffice, in others, especially in strong, robust, plethoric women, sixteen, twenty, or even thirty may be required. Dr. Dewees, to whom is justly due whatever praise or blame attaches to this practice, occasionally bled to the extent of forty ounces before he succeeded in overcoming the rigidity of the os. Sometimes,

indeed, he carried the operation even to syncope; always placing the patient in the erect or semi-erect position, so as to expedite and increase the effect.

Dr. Dewees informs us that he was led to adopt the employment of general bleeding in midwifery, near the close of the last century, from having witnessed its beneficial effects in the practice of Dr. Physick, in relaxing the muscles in dislocations of the shoulder-joint.

Out of the injuries now considered, often unavoidable, but in the great majority of cases the effects of gross ignorance, timidity, indecision, or the maladroit use of the forceps and of other instruments, has grown gynæcology, a twin sister of surgery, the scientific foundation of which was laid hardly thirty years ago by the immortal Sims, aided by Bozeman, Thomas, and Emmet, of America, by Baker Brown, of London, and by Gustav Simon, of Heidelberg, all pioneer laborers in this great field of the healing art, now trodden by many thousand feet, and illustrated by special treatises and contributions alike honorable to their respective authors and creditable to their respective countries.

DISCUSSION.

Dr. Battey, of Georgia.—Mr. Chairman: I would like just one moment to put myself upon the record in confirmation of one of the views by our late lamented associate of this Section, and it is this:

Although a very much younger man than Dr. Gross—very much younger—the summing-up of my obstetrical experience is (to put it in a word), in looking back over it, in not a single instance have I regretted the use of my lancet in obstetrical practice. In many, many instances, as I now recall them, I think that positive good would have grown out of the more frequent use of it. I bleed, sir, still.

Dr. H. F. Campbell, of Georgia.—Mr. Chairman: I am glad of the opportunity of being able to discuss a paper, the principles of which, perhaps, would meet with no commendation from many, no matter how much we venerate the illustrious man who honored this Section with his last contribution. I am glad that I entertain views so entirely consonant with his. I am glad that my friend from the same State as myself (Dr. Battey) agrees, to a great extent, in the few remarks that he made, with myself.

Blood-letting in labor, blood-letting especially in puerperal eclampsia, has, in my opinion, been most unjustly laid aside, most unjustly condemned. Let us look back and see what has been given us in the place of blood-letting—chloroform, chloral, bromide of potassium, and a variety of other ex-sanguinating remedies—while, at the same time, it is absurdly claimed that anæmia of the brain is the cause of convulsions. It is also claimed that uræmia is the cause of convulsions.

Now, let us look at the natural and logical results. Let us take the anæmia question. If anæmia of the blood causes puerperal convulsions, why give those very remedies that produce ex-sanguination of the brain? If convulsions are caused by anæmia of the brain, why give chloroform? Why give bromide of potassium? Why give chloral—all remedies that ex-sanguinate the brain?

On the other hand, let us look at the uræmia question. If urea, as it is said, collected in the blood, results from congested kidneys, if congested kidneys arrest the flow of urine and give rise to uræmic blood, we ought then to ex-sanguinate the kidneys, to bring the kidneys down to the point of proper and healthy elimination, that the blood may be freed from them.

Now, about this question of blood-letting producing convulsions. If a woman had convulsions, it was claimed, at one time, that there was irritation of the brain; now, it is claimed that it is anæmia of the brain. In order to prove this question, I took two birds. I cut the carotid arteries and all the tissues of one of these birds, that were in front of the cervical portion of the column. That bird bled, bled, fell, and died without a kick, showing that, if anæmia of the brain would produce convulsions, certainly my bird, which was an ordinary barn-yard fowl, would not have died without a kick. [Laughter.] In the other bird, I left all the arteries and other tissues in front of the column intact, and then severed the cord by a subcutaneous incision between the cervical vertebræ. The convulsions were exactly those witnessed in the fowl after decapitation, only they were more prolonged, as life was sustained by continued circulation. Indeed, the severing of the arteries arrested the convulsions. That bird might have been hopping until now, had I not severed the carotids and produced anæmia of its brain. [Loud and prolonged laughter.]

Dr. Harvey, of Indiana.—Mr. Chairman: While no one excels me in respect and honor to the lamented author of the paper which has been read, I take it that the subject-matter is to be treated of as freely as though he were here among us; and especially do I deem it right and proper that we should discuss this paper, when such doctrines and teachings have been given to us this afternoon. It is a matter of necessity, it seems to me, that the views which are taught here by the paper and by the gentlemen who have discussed the paper, should meet with an expression upon the other side of the proposition,—because I know that such a feeling exists. [Applause.]

We are certainly not going to turn back in this age of the world and begin over again and bleed our patients. While I admit the necessity of the use of the lancet occasionally, in certain well-selected cases, I want to say, that, although I am a young man, I entered the medical profession in the days of blood-letting. And while I have seen good results, important results, in labor, from the use of the lancet, I must say that I have seen better results from the use of chloroform and opium, both in convulsions and the relaxation and the prevention of lacerations and other accidents spoken of by the paper. [Applause.]

I think that we ought to feel grateful to our lamented friend for having considered the subject and for bringing it before us as has been done. But I am certain that, by the remedies that are now in use, these accidents will be prevented much better than by blood-letting, which, although it acts occasionally beneficially, certainly does harm to the patient in the long run. [Applause.]

Dr. Kinloch, of South Carolina.—Mr. Chairman:

My friend who has just preceded me has anticipated some of the remarks I propose to make. My whole impression from the reading of this paper is that it is a paper representing simply the force of early impressions, and it shows how tenacious those impressions are, and we must not forget that opinions of great men have their power for evil as well as for good. [Applause.]

I disagree, sir, entirely with the sentiments as expressed in that opinion as to the surgical use of blood-letting. I have practiced medicine, sir, for thirty-five years, as a general practitioner, and have had my fair share of obstetrical practice, and have never yet bled a woman in labor, and I may say, without boasting, that I have only lost two women from consequences connected with the parturitial state. I would ask my friend, if he were here, if he would apply the same rules to surgical as to obstetrical practice. And if the rules are not applicable to surgery, they are not applicable to obstetrics.

In reference to his remarks—I do not remember his exact language—that God should have created a skilful gynæcologist at the same time he created woman, to meet the difficulty of parturition, I would say that, according to his view, every woman ought to be born with a lancet around her neck to meet the difficulty. [Laughter and applause.]

Dr. Seymour, of Troy, New York.—Mr. Chairman: It seems to me, sir, from the experience of the different members who have spoken, that there must be some difference in the diseases of the localities in which they practice. Certainly it is the experience of the older men in the section in which I have used the lancet, that the diseases of the present time cannot sustain it, and I will ask the Section if it can be justified, in their experience, to employ bleeding in puerperal or other diseases in a condition of diphtheria and other poisons.

Dr. Smith, of Washington, D. C.—Mr. Chairman: An old friend of mine who has just left the room, remarked to me that the paper of Dr. Gross, which has just been read, takes rank with Washington's Farewell Address. [Applause.] I make this statement merely to say that the old doctors still believe in bleeding, the young do not believe in it quite so much. [Applause.]

Dr. Claiborne, of Virginia.—Mr. Chairman: I suspect that in this case, sir, the truth lies, as it ordinarily lies, in the middle,—that there are some cases which should be bled, and some which should not. And whilst I stood here yesterday, the advocate of chloroform and, as I believe, the use of chloroform is in a great many instances superior to venesection, yet I should be very sorry myself to throw the lancet utterly away. I am neither an old man nor a young man; I am in the middle, and therefore I claim to be nearer the truth. I have practiced medicine about thirty-two years, the most of that time engaged in obstetrical practice in a city where I had, of course, an opportunity of seeing a great many cases of obstetrics; and it is especially fitting that I should state to-day one word in memory of the venerable gentleman who has left with us his last contribution. At the last time on which I had occasion to appear before this convention, some one, in discussing the subject of blood-letting, made the suggestion that he doubted whether a single lancet could be found in the whole assembly. I pulled one out of my pocket and said that I had used it for twenty years,—which "brought down the house," and Dr. Gross arose and complimented me. I think, sir, in view of that occasion, that I should say this one thing—that the truth lies with him as it does with us. [Applause.]

Dr. Reamy (having temporarily vacated the chair).—As the time has nearly expired, and I find no one else on the floor, I take this opportunity to express two or three thoughts that have occurred to me. I think with my friend on the left (Dr. Harvey), that since this is a contribution to this department as the teachings of this great man, while we have the greatest veneration for his kindness of heart and greatness of mind, his wonderful industry, and his almost marvelous life work,—while we mourn together his death, even in the ripeness of his years, yet when we receive this paper, it stands upon the same ground that it would stand if he were living, because it is to be published. Therefore I, with my friend on the left, cannot let sentiments uttered in this paper from so distinguished a source, go upon the record unchallenged.

Perhaps enough has been said with reference to the fallacy taught as to bleeding, but still there is a little point in the matter which has not been brought out. Summing up in this paper, the distinguished author says that he would bleed in threatened abortion. There is no distinction drawn here as to what kind of a threat, as to the causes leading to the threatened abortion,—simply that if a woman were threatened with abortion he would bleed her. I need not qualify my remarks when I say that the inconsistency of such a recommendation is apparent. Granting that the blood-letting could do no possible harm ultimately, which we do not grant, and granting everything for it that is claimed, the proposition to bleed in every case of threatened abortion need not be condemned—it condemns itself!

He would also bleed in a case of fever! If a pregnant woman has fever, he does not make the distinction that, if the obstetrician or general practitioner in charge of that woman recognizes this fever as septic fever, the threatening of the storm that is probably to take her off, he would bleed her because she had received poison into her system, and fever had been produced by it! Why would he bleed such a woman as this, lessen her vital power, take from her the blood which is "the life thereof?" that she should therefore be the better prepared to fight the germs in her system? and bleed her that the next day she may enter upon the throes of labor minus that amount of life the lancet has taken from her? [Loud applause.] Rather husband every particle of strength, knowing that it will be required to resist the influences that are against her!

He would bleed her in a case of rigidity! He would bleed in a case of nagging pains! Now, I will not dwell upon this. An obstetrician in these times who has not been taught that the lancet is the grand remedy for all the ills that a parturient woman can enter upon, would, in cases of this kind, give her a dose of

morphia, chloral or chloroform, let her sleep for four or five hours, and come back and deliver her. Or, if her circulation required, would give her a sedative. He would bleed her in puerperal convulsions, perhaps. With my friend, Dr. Lusk, who has written so well, and whom the author of the paper has quoted, I would, and you would say, that the lancet has properly come in vogue again in those cases, and that in a certain proportion of those cases bleeding is the best remedy. There is no doubt about it, and at the same time that it includes but few of the cases. Those who have tried the hypodermic injection of morphine, and seen the woman sleep quietly and sweetly, who, a few moments ago, was in peril from most violent convulsions, would not, I fancy, be willing to bleed in every case—only in properly selected ones. [Applause.]

Now, just one word in regard to the forceps. This distinguished author ought to have sent to this Section a cut of the forceps to which he referred. He must have remembered that the instrument used by those who used it so infrequently at the time of which he speaks, was an instrument but a little improvement on the instrument used by Chamberlen himself. Those are not the forceps spoken of yesterday by my friend upon the left (Dr. Taylor, of New York). Instruments are not now what they were.

But he asserts that teachers of obstetrics have a fearful responsibility upon them for sending out obstetricians to use the forceps—to use it indiscriminately, and do with it so much damage. Now, without doubt, forceps are too frequently used by some practitioners. This instrument is used for the sole purpose of saving time, and, of course, it is wrong—to save time to the physician, I mean, for the purpose of getting to a good supper. It is wrong. But even my friend, Dr. Lusk, on my right, will grant that this charge in general is not sustained by the facts. The students who now go forth and are taught in this department, are more competent after two years' practice, very much more competent; and I do not refer to one college or to any single student. I say that the students who go out of the average medical college to-day, know how to use the forceps, are better instructed in their use, understand the principles better, know when and how to use it, than the average practitioner of 40 years' experience in those days. There is no question about it. The books that have been written upon this subject within the last few years, from those of the time of Hodge until now, make this subject much plainer. It is a very different thing from what it was. Therefore, I think this view is entirely out of place. The forceps is not the weapon of ruin described. It is not used indiscriminately and by bungling men to injure the uterus, vagina and bladder as has been described. I therefore wish to enter my protest against that particular part of the paper. I do not think that the forceps are used by the average practitioner as often as is asserted. The gentlemen who have been quoted may have used the forceps once in seven cases, but the average practitioner throughout the country does not use the forceps so frequently. I speak from observation and from information obtained from communications within the last year. They do not use it upon the average more than once in fifteen or twenty-five cases. The distinguished author of the paper is, therefore, laboring under a mistake—an error that ought to be corrected.

Dr. Taylor, of New York.—Mr. Chairman: I rise simply to make an apology for the remarks of the author of this paper. The views that he has stated are the same that I was taught, and I think the Section will pass a vote that this is an antiquated view that was taught some 50 years ago. I do not see any difference in the views stated by Dr. Gross and those which I was taught long ago. At the same time, I do not take the view now that I did at that time.

Dr. Wathen, of Kentucky.—Mr. Chairman: Granting that the administration of chloroform and chloral to the pregnant, parturient, or puerperal woman causes anæmia of the brain, as remarked by Dr. Campbell, would not this be far less injurious than blood-letting in such cases, for that depletes the brain more than either of these remedies, causing general anæmia, so that the woman is less able to pass safely through the trying ordeal of the puerperal state. I have never seen a woman with threatened abortion, or with continued or malarial fever before labor, in which I could possibly conceive that blood-letting would be of any benefit. Blood-letting, in a robust person with an increased volume of blood, in the beginning of an attack of puerperal eclampsia, may be indicated for the purpose of preventing fatal injury to the brain until other means will control the convulsions. I cannot concur in the opinion of Dr. Gross, that the abstraction of large quantities of blood from the pregnant woman leaves her system in a better condition to pass safely through the puerperal state. That this woman, who, after parturition, needs everything that will sustain her, and enable her to recover from the puerperal condition, who cannot take large quantities of good nourishing diet that makes rich blood, whose generative organs have to go through the process of involution, and who has to provide milk to nourish her child; is in a better condition after having been profusely bled, as he advises, than one who has not been bled, is a statement to me so absurd that I believe the profession of the country will not adopt it; so pernicious is it in its influence, that I trust before adopting it the profession will consider well the consequences. [Applause].

JEWISH HYGIENE AND DIET, THE TALMUD AND VARIOUS OTHER JEWISH WRITINGS HERETOFORE UNTRANSLATED.

BY C. H. VON KLEIN, A.M., M.D., DAYTON, O.

[Read in Section of State Medicine and Hygiene of the American Medical Association, May 1884.]

We are now in the age of pride and the Niobe of nations. But when we look back even to the dark age of the Egyptians, we find that our sanitary measures are far behind any other advancements of modern civilization.

Hygeia, commonly called the goddess of health, and from which the term hygiene has its etymology, was a pretender, as well as her father Esculapius, who styled himself the god of medicine.

But when we look back beyond the days of those pretenders, we find that nations lived hundreds of years before them, whose literature was ever preserved by a nation which has preserved itself and survived nations of ordinary power.

When the Egyptians strove amongst themselves, their literature was destroyed, and the loss of the library of Alexandria is felt at the present age.

But of those people of whom I am now about to speak, though driven from country to country, and from nation to nation, at all ages and in all centuries, and are still persecuted, nevertheless their literature is preserved and shines forth with them in full maturity.

Hippocrates, who is supposed to have lived about 400 years before Christ, whose writings on medical art have been preserved, and who endeavored to explain the causes of disease in the human frame, and their symptoms, and pointed out their preventatives, and laid down sanitary regulations and exercises for the preservation of health, appears to have been acquainted with those large volumes of scientific writing, as he well describes their contents.

I am surprised at Galen, the great master, one of the most illustrious men in the annals of medical science, that he does not mention something about them. But I am not surprised at Paracelsus, the father of quacks, who styled himself Theophrastus Bombastus, Philosophus, and other great names to which he was not entitled.

Ever since the days of Hallè, and to the present day, men have lived in both hemispheres who became illustrious for their researches in sanitary science, still, on those great works which embrace the teaching and learning of human hygiene, they are mute.

I mean the illustrious works of the Jewish Talmud, the greater part of its contents, hygiene, a perfect treatise for preserving health. One might not think it possible that the researches of the learned could overlook such a valuable scientific writing. It is strange but nevertheless true, and can be partly explained. They are writings and teachings of a creed whose name was, before the crucifixion of Christ, and ever since has been hated, persecuted, and rebelled against.

Secondly, they are written in languages that modern scientists are unacquainted with, from the fact that the Talmudic language is a conglomeration of the Hebrew, Chaldaic, Armaic, Syriac, Arabic, Greek and Latin. It was preserved by oral delivery for many generations before Christ, and until about the second century after Christ when the Mishna was compiled. About the middle of the sixth century the entire work was finished.

The תלמוד Talmud (teaching) comprises the Mishna and the Gamara. Its contents are of a diversified character, relating not merely to religion, but to philosophy, medicine, history, jurisprudence and the various branches of practical duty.

The משנה *mishnah*, (*repetition*), or in abbreviated form ש״ם *shas*, (*six*), and the גמרא *gamara*, (*completion or supplement*), comprising the Talmud Babylon and Talmud Jerusalem is composed of six סדרים *sedarim* or orders, containing 63 מסכתות *massecoth*, or tracts, and 524 פרקים *perakim*, or chapters; of which 231 are devoted to sanitary regulations or exercises.

The first *seder* called סדר זרעים *seder zeraim*, *the order of seeds*, treats of sowing the productions of the earth, trees, uses of fruits, etc. It comprises the following treatises:

1. מסכת ברכות *massecoth berachoth*, the treatise of blessings.
2. מסכת פאה *massecoth pehah*, treatise of the corner.
3. מסכת דמאי *massecoth demai*, treatise of the doubtful.
4. מסכת כלאים *massecoth ciliam*, treatise of the heterogenous.
5. מסכת שביעית *massecoth shebieth*, of the seventh year.
6. מסכת תרומה *massecoth terumah*, of the oblation.
7. מעשר ראשון *maasher rishon*, of the first tenth, or tithe.
8. מעשר שני *maasher sheni*, of the second tenth.
9. חלה *challah*, of the cake.
10. ערלה *orlah*, of the prepuce.
11. בכורים *bicurim*, of the first fruits.

The second *seder* called סדר מועד *seder mœd*, *the order of festivals*, when they should begin and terminate, the different ceremonies to be observed on such occasions, etc., comprises the following treatises:

1. מסכת שבת *massecoth shabboth*, of the laws of the Sabbath.
2. ערובים *erubim*, of mixtures, showing how, on the evening of the Sabbath, the food collected by various neighbors should be united as if they belonged to one household, so that persons living at a distance should not break the Sabbath by too long journeys. [This treatise has some hygienic bearing].
3. פסחים *pesachim*, the passover.
4. שקלים *shekalim*, shekels, treatise on contributions.
5. יומא *yoma*, the day of atonement, treats of the solemnities peculiar to it.
6. סוכה *succah*, tabernacles, how they are to be built and used. This contains, also, some hygienic rules on ventilation.
7. ביצה *betzah*, egg, whether an egg laid on a festival day should be eaten that day or not.
8. ראש השנה *rosh hashannah*, New Year's, how the day should be kept.
9. תענית *taanith*, fasts, treats of the various fasts throughout the year.
10. מגלה *megillah*, the roll, treats of the feast of Purim.
11. מועד קטן *moed katon*, minor feasts.
12. חגיגה *chagigah*, sacrifices on festivals, treats of the three great festivals when all the males were obliged to appear before the Lord, and the sacrifices they were to bring.

The third *seder* called סדר נשים *seder nashim*, *the order of women*, this section discusses the distinctive rights of men and women, marriage, divorce, the customs, inclinations and sickness of women. It divided into the following treatises:

1. יבמות *yebamoth*, brother's widow, treats of the law obliging a brother to marry the relict of his deceased brother.

2. כתובות *cethuboth*, marriage settlements, relates to marriage contracts, dowries, etc.

3. נדרים *nedarim*, vows, what vows are binding or not, who can make vows and who not.

4. נזרות *neziroth*, Nazarites, the laws relating to them.

5. גיטין *gittin*, divorce. This treatise has many valuable points on medical jurisprudence on that subject.

6. סוטה *sotah*, jealousy, trial of, treats of women suspected of conjugal infidelity.

7. קדושין *kiddushin*, betrothing, treats of the laws of espousal. It states that all ass-drivers are wicked, camel-drivers are honest, sailors are pious, physicians are destined for hell, and butchers are company for Amalek.

The fourth *seder* is called סדר נזיקין *seder nezekin*, *the order of damages*, and is composed of the following treatises:

1. בבא קמא *baba kama*, the first gate. It assesses damages done by a beast according to the benefit it receives. If it eats a peck of dates its owner would be fined a peck of barley, as dates are not more nourishing to a beast than barley.

2. בבא מציעא *baba metziah*, the middle gate, treats of the laws of usury, landlord and tenant, etc.

3. בבא בתרא *baba bathra*, the last gate, relates to commercial transactions, buying and selling, inheritances, etc.

4. סנהדרין *sanhedrin*, treats of the great national senate.

5. מכות *maccoth*, stripes, relating to the forty stripes which were to be inflicted on certain offenders.

6. שבועות *shebuoth*, oaths, who are qualified to take them. A vast amount of medical jurisprudence is found in these chapters, as it treats of persons who are disqualified—women, slaves, idiots, deaf persons, the blind, the wicked, despised relations, and those interested in their evidence.

7. עדיות *edaioth*, evidences, respecting witnesses and witness-bearing.

8. אבות *aboth*, fathers, contains a history of those who handed down the oral law.

9. הוריות *horaioth*, punishment, how persons were to judge in cases of trial, and how transgressors were to be punished.

10. אבודה זרה *abodah zarah*, idolatry, or the worship of stars and meteors, and how to avoid idolatry.

The fifth *seder* is called סדר קדשים *seder kodashim*, *the order of holy things*, treating of sacrifices, oblations, their different species, etc. It is composed of the following:

1. זבחים *zebachim*, sacrifices, the nature and quality of the offerings.

2. מנחות *menachoth*, meat offerings.

3. חולין *cholin*, unconsecrated things. This treatise is a notable endeavor towards the protection of animals, as well as to the hygiene of mankind. It treats of what is clean and unclean, of not eating the sinew that shrank, and not killing the dam and her young in one day.

4. בכורות *becoroth*, first-born, respecting the first-born of beasts.

5. ערכין *eracin*, estimations, relates to the valuing and taxing of things dedicated to God.

6. תמורה *temurah*, exchanges, the manner in which exchanges are to be made in sacred things.

7. כריתות *cerithuth*, cutting off, treats of offenders cut off from God.

8. מעילה *meilah*, trespass, treats of things partaking of the nature of sacrilege.

9. תמיד *tamid*, daily sacrifices.

10. מדות *middoth*, measurements, relates to the measure of the temple.

11. קנים *kinnim*, birds' nests.

The sixth and last *seder* is called סדר טהרות *seder taharoth*, the order of purifications, relative to the purity and impurity of vessels, to household furniture, and other things and the way they should be purified. It is composed of twelve treatises almost entirely devoted to hygiene, as follows:

1. כלים *celim*, vessels, treats of vessels and household goods which convey uncleanness.

2. אהלות *aholoth*, tents, treats of tents, cottages and houses retaining uncleanness, how persons who enter them become unclean, and how they are to be cleansed and disinfected.

3. נגעים *negaim*, plague of leprosy, treats of leprosy of men, garments, or dwellings, how their pollution is conveyed and how they are purified.

4. פרה *parah*, the red heifer, directs how she is to be burned and her ashes used in purifying.

5. טהרות *tahoroth*, purifications, how purification is to be effected when a person who has touched an object has been made unclean.

6. מקואות *mikvaoth*, pools of water, concerning the reservoirs of water in which the Jews bathed, or washed themselves.

7. נדה *niddah*, separation, the uncleanness of women during the menstrual period, etc.

8. מכשירין *meeshirin*, liquors, treats of fluids and their purification.

9. זבים *zabim*, issues, treats of nocturnal pollution, seminal emissions, masturbation, etc.

10. טבול יום *tebul yom*, the day of baptism, treats of certain days when the Jews have to wash their bodies, or immerse themselves in order to become clean.

11. ידים *yadaim*, hands, respecting the washing of hands before eating any meal.

12. עוקצין *oketzin*, stalks of fruits, relative to the stalks of fruits and how they become unclean by touching other fruits.

It can be seen from the above treatise that it is full of hygiene. It is true that it contains many fabulous, trifling, absurd, childish and irreverent things, and we coincide with Milman when he says:[1] "the Talmud, that wonderful monument of human industry, human wisdom and human folly."

The only people at present, with very few exceptions, who seem to be acquainted with the Talmud

[1] Milman, History of the Jews. Book xx.

are the Jews, and they appear to be silent or skeptical in regard to it. I cannot conceive why those Jewish physicians living in the most enlightened parts of civilization, in America and Europe, in a city like Vienna, for instance, where in fact the greater part of the medical faculty of the University of that city is composed of Jewish writers and teachers, who are second to none, why they should be silent on the writings and teaching of this great work which has been suppressed for so many generations.

It rests with me in my humble judgment to think they are guilty of two unpardonable mistakes,—one the fear of prejudice to their reputation by revealing their treasures,—the other, their false impression that it is theological and of no value to science. It is said[1] Galileo read medicine with a Jewish physician who taught him the Talmud, and from which he formed his ideas of astronomy, and that should remind them of him who to the last moment said "it moves for all that." They forget that the[2] Codex Romana is taken from the Talmud, on which is based all the moral and civil law of all civilized governments. They forget that among the commentators were physicians of no simple ability, men like Maimonides, רמבם Rambam, commonly called Moses Egypticus, who was a physician to the Sultan; Nachmandides called רמבן; Ramban, who wrote valuable works on medicine; Rabbi Solomon ben Isaac, commonly called רשי Rashi, and many other illustrious men of the middle ages, like Ibn Gabrial, Ibn Ezra, Abarbanel, and Alfosi, some of them were even counsellors to crowned heads,—the illustrious Abarbanel[3] was privy counsellor to Alphonse the V, King of Portugal. If men of this rank could take advice from those men, I think we surely could be benefited by it. We could translate with great pride Egyptian, Grecian, Roman and Hindoo, names not worthy of mention, but of those men whose names would decorate the index of medical authors, the annals of medical science is obliterated.

Those names just mentioned are but a few of the great commentators, whose discourses taken separately would no doubt be approved by the present most advanced minds of sanitary science.

Those works would have long been in the hands of progressive physicians, if not for the short life of Chiarini, an Italian, who proposed to publish a French translation of the whole Jerusalem and Babylon Talmud. In his Thearie du Judaism and in his Talmud Babylon, Leipsic, 1831, he explained his views and intentions. His death, however, while attending the sick, of cholera, in 1832, unhappily cut short his labors.

There were numerous others who have attempted to translate separate treatises and chapters. The best of all is the one lately published by Doctor Rabbinowitz, of Paris, though not complete but worthy of note. I trust it will soon be translated in many other modern languages.

Happening to be one day in the Union Hebrew College of Cincinnati, I listened to a boy of fourteen, who so clearly recited to his instructor and translated it into English the Talmud חולין *cholin* giving all the anatomical names of the animals, and describing the pathological views of the organs, their healthy and unhealthy appearance, that with pain I thought if here is but a boy, probably without a finished education, who can translate so readily, how easily could a physician of his race, with all the accomplishments of modern education perform the task. It left one to charge them with gross negligence and rational hypothesis for their assumption.

There are besides the Talmud many other valuable works among the Jews which are almost entirely devoted to hygiene, viz.: חי אדם *Chi Adam, life of man;* שולחן ערוך *Sulchan Oruch,* a set table; אורח חיים *Aarach Chaim,* path of life; יורה דיעה *yorah deah,* teaching of knowledge, etc.

I would enter into detail of the תריג מצות *Tarjag Mitzvoth,* six hundred and thirteen commands of the law, more than one-half of which pertain to hygiene, and show that the whole period of Jewish life, from Alpha to Omega, is based upon sanitary measures and morality, which is the basis of health. But my time being limited, I will attempt to prove this as briefly as possible, and comment upon it, basing my views upon the researches of many scientific investigators and naturalists.

To do this we must commence with the first origin of the race. Our earliest acquaintance of Jewish history discloses the fact that it has commenced with a sanitary act. [1]Abraham was the first Jew who became such by circumcision. In his days there lived a people all around, in the foremost rank.

The Canaanites and Egyptians were distinguished for their sensual propensities, especially for their low passions in lust and harlotry, so that scarcely one female from the age of three years and upwards could be found without having been defiled; not one woman was safe from being ravished; a husband had to guard against jeopardy on her account. For the truth of this statement we must refer to Biblical history. When [2]Abraham was to start for Egypt he took the precaution to deny his wife Sarah, claiming her to be his sister, he feared the Egyptians might slay him and take possession of her, whereupon the ancient Rabbi's comment "because the Egyptians were then well known for being an unchaste, lascivious and lewd character." [3]It relates further that Abraham sent his servant Eliezer to select a wife for his son Isaac from amongst the maidens of his own kinsmen and there was but one maiden, Rebecca, the daughter of Bethuel, and she was a pure virgin, never having been defiled by any man. It implies, says the great commentator Rabbi Solomon ben Isaac (Rashi), [4]that all the girls of other parentage were either naturally ruptured or misused in an unnatural way.

By such a state of prostituted humanity Abraham deemed necessary some prophylactic, so as to protect his descendants against raging diseases which might occur from such a state of immorality.

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[1] Racconto Viti di Galileo a Agostino Mascardi.
[2] Historia Codex Romana. Cap. xxii, a Clodius.
[3] Historia Politica Lusitania, d' Somduva.

[1]Genesis xvii.
[2]Genesis xx.
[3]Genesis xxiv.
[4]Rashi's Commentary on the Bible. Genesis xxiv.

Abraham was a patriarch and philanthropist, a lover of humanity; his father, an idol maker, made him acquainted with human weakness of faith. He knew well he could make his people follow him by impressing upon them a power above mankind, so he declared circumcision an ecclesiastical act, and like other true men, upon his own person, at his old age, ventured the operation.

By this he has accomplished something that every physician of the present day approves. Humanity might be proud if every man in the world was circumcised. It is true they do not claim it as a sanitary measure, but I do not care, be it to serve God or the devil, I for one would feel proud of its operation. The horrible suffering from phymosis and paraphymosis is but too well known and can not occur within the tribes of Israel.

It appears that the Jews were educated to morals from their beginning, contrary to the "History of Prostitution" by Dr. Sanger, wherein he claims that prostitution commenced with Jewish women, and was a common thing among them even without shame. He endeavors to prove this by relating the criminal intercourse of Tamor and Judah. This is one of the curious errors into which learned men occasionally fall, strangely and unaccountably. [1]Tamar was not a Jewess.

He further aims to prove by Judah sending his friend, a man of high standing, to redeem his pledges. It can be proved just the contrary by a careful perusal; that when he sent the Adullamite to replevy his cloak, bracelet and staff, and when he returned saying he could not find her, Judah said: [2]"Let her take it to her, lest we will be shamed." And after he found out Tamar his daughter-in-law played the harlot, and that she was pregnant, he would not recognize her.

If prostitution was so common among the Jews they would surely have some infection, or at least some disease, but we must admit that there is no disease mentioned within the whole book of Genesis except that Leah had sore eyes.

It is true that the Egyptians were so wicked in their practice, that it may seem incredible to us, but it admits of the fullest proof that [3]prostitution was a part of their worship, and in some of their temples large numbers of females were kept, and the price of their shame went to the support of their priests. Sons cohabited with their mothers, brothers with their sisters and with their nearest kinsmen; man with man, and man with beast.

Such was the state of affairs among the Egyptians at the time of Moses the great legislator. He, with his philanthropic heart and active mind, saw that his people were in danger of becoming educated to the same mode of life as the Egyptians. Moses, like Abraham, saw that he could be believed only by frightening them by commands through a heavenly king. He at once proceeded to Mount Sinai to receive such commands. When he returned he appeared with mystical performances, with fire all around him, heavy clouds were produced by the smoke, thunder and lightning followed as a matter of course. These had great effects upon the people and his commands were kept holy; not only the ten commandments, but all other commands that Moses claimed to be the gift of a God. Here again he instructs them: "[1]After the doings of the land of Egypt wherein ye dwell shall ye not do: and after the doings of the land of Canaan, whither I bring you, shall ye not do * * * none of you shall approach to any that is near of kin to him, to uncover their nakedness. The nakedness of thy father or the nakedness of thy mother shalt thou not uncover; thou shalt not uncover the nakedness of thy father's wife; * * * of thy sister; * * * of thy son's daughter; * * * of thy father's wife's daughter; * * of thy father's sister; * * * of thy mother's sister," etc., "also thou shalt not approach unto a woman to uncover her nakedness so long as she is put apart for her uncleanness; * * * * thou shalt not lie with mankind as with womankind. Neither shalt thou lie with any beast to defile thyself therewith; neither shall any woman stand before a beast to lie down thereto, * * * * for in all these the nations are defiled which I cast out before you."

Indeed, it can be seen by the Egyptian doctrine of metempsychosis or transmigration that it tended directly to induce this crime. It is not, however, a matter of inference, but of historical truth that this crime was practiced in Egypt both by males and females, but the code of Moses intercepted the Jews from following the footsteps of their neighbors; and right here it is proper for us to remark that its influence continued unto all generations. There were intervals when the Jews became perfidious. There were many who became [2]uncircumcised in order to devow their nationality. Under such circumstances it became a necessity to establish laws more rigid than those given by Moses. Here arose the great Rabbis and compilers of the Talmud and formed a סנהדרין Sanhedrin who established a court of law which had the power to enact religious ordinances and to decide legal cases, with pains and penalties according to their crime, having jurisdiction over life and death. This tribunal consisted of seventy-one men,[3] the most learned among the Jews, who were the highest power of the nation.

Besides this great body at Jerusalem there existed many minor Sanhedrins consisting of twenty-three members, in every large country, while at smaller places the judiciary consisted of three persons, composing their minor courts. The former mentioned Sanhedrins are the ones who ordained the great laws of hygiene. The last mentioned minor courts are still in existence and operation in almost every congregation throughout Europe. They are termed בית דין *baith din*, house of judgment. Their main acts are decisions upon what is כשר *cashir*, clean, or טרייפע *traipha*, unclean, so that if anything occurs within a Jewish household that raises the question of

[1]Kitto's Biblical Cyclopædia.

[2]Genesis xxxviii.

[3]Manley's Commentary of the Bible, vol. iii, chap. xx, sec. viii.

[1]Exodus, xix.

[2]Celsus describes the operation. DeRé Medica, vii, 25.

[3]Some claim seventy-two, including the High Priest.

cleanness it is referred to this body, and their decision is generally abided by. These questions arise very frequently, especially among the Orthodox Jews, as their cleanliness is amazingly great.

In washing the hands, נטילת ידים *natilat yadaim*, they are not only instructed to do this, but they are told in what manner: for instance, they are not to wash their hands by dipping them in a vessel, but the water must be poured upon them; they must pour with the right hand upon the left, and with the left on the right, etc., three times; after this they wash the face and rinse the mouth, drying the hands and face with a towel. This must be done as soon as they arise from the bed,—even in the daytime. They must not touch any portion of the body before this is done; also before and after each meal, after each evacuation or urination, or the touching of dead bodies or anything unclean. In districts of Orthodox Jews they have public baths which are used every morning before breakfast by each individual; these are termed בית טבילה *Bait Tbilah*, a house of baptism. This certainly is a very notable endeavor to prevent disease.

It lays down sanitary regulations for what they must eat and drink. The diet is so regulated that one article of food will not interfere with another in digestion; for instance, after eating meat they are to wait three hours before milk or its substances dare be used, as the milk is liable to coagulate and irritate the stomach; even vessels in which meats are prepared are prohibited to be used for milky substances, or *vice versa*. This is done for the purpose of strengthening the commands so that they will not allow themselves to consume meat and milk at the same time. They are also prohibited from eating חית רעת *chait roet*, wild beasts that do not chew the cud, or have the hoof parted, of the species of a bear, lion, tiger, etc., as such live almost exclusively upon animal food. This is reasonable, as they are liable to be infected by morbid poisons from the consumption of dead animals that might have died from hydrophobia or other raging diseases, such as are sometimes found among dogs, cats, rabbits, foxes, wolves, etc., for whatever disease originates spontaneously in those animals is subject to be transmitted from one to the others; they are therefore dangerous as diet. Even עופת רעת *œphet roet*, wild fowls of the species of the crow, eagle, ostrich, owl, stork, bat, etc., are prohibited, as they consume dead animals.

The meat the Jews consume from the beast or the fowl must be killed in a certain way, and with a certain instrument, not according to the vulgar custom by striking on the head, by a rude knife, or in a coarse and violent way that would mangle or lacerate the body, which might produce instant inflammation and probably blood poison, thus making it unclean and unfit for anybody to consume.

The killing of the beast as well as the fowl must be by bleeding through the jugular vein. Prior to the killing the animal must be well rested, and its respiration normal. There must be no broken limbs; their lungs must be blown up to the trachea and if it does not expand it is soaked in water twenty-four hours, when if it does not expand, the animal is unclean.

The veins and arteries must be dissected from the animal; this is done for no other purpose but to ascertain whether there are deep-seated abscesses or not, (such abscesses being generally found about the arteries and veins) that would make the animal unclean. The blood of all animals is prohibited as the consumption thereof is dangerous to human life, as all animals are subject more or less to scrofula or other blood diseases. According to [1]Drs. Buchner, Kerner, Dunn, Horn, Shuman and others, poison has developed in sausages made of blood and to which they have given the name of Allantotoxicum.

Therefore the Jews do not eat meat, either of the beast or fowl, unless prior to eating it has been well soaked and salted. Their mode of preparing is first to soak it half an hour, then it is well rinsed off with clean water, and salted on both sides, placed upon a board slanting, there to remain from twenty to thirty minutes, then again it must be rinsed three times before its use is proper. The prohibition of the use of חזיר *chazir* swine for food among the Jews is unnecessary to dwell upon, as its effects are but too well known to the laymen as well as to the physician. Not only from the danger of trichinæ but of all other diseases that the hog is inherent to. The hazard from the use thereof and its importation have of late years become national issues in all civilized governments. It should not only be an issue where it is to come from, but its use should be entirely eradicated. Mountains would sink down from the dead caused by the use of this miserable brute. Fish without scales and fins דגם בלו סנפיר וקשקשת *dagim balœ snapir wacashcashet* are also prohibited among the Jews. This stands to reason, as frightful poisons are found in many kinds of fish, not to say that all fish without scales and fins are poisonous, but all poisonous fish are without scales and therefore they must be dreaded. Naturalists have declared that fish live upon their kind, that is to say fish without scales live only upon such as have no scales, etc., so they are liable to be poisoned from others.

All שרצים *sharatzim*, creeping things, or reptiles or food containing the same is strongly prohibited and the use thereof is considered a great crime by the Jews.

Water, vinegar, and other liquids suspected of foreign bodies must be strained through a cloth. All vegetables subject to vermin, such as parsley, caraway, lettuce, green onions, peas, mushrooms, berries, cherries, and all vegetables whatsoever must be picked and examined leaf by leaf, kernel by kernel, and grain by grain.

All fruits such as apples, pears, cherries, citron, apricots, peaches, oranges, lemons, nuts, etc., that are decayed or mouldy, the use of is prohibited; the seeds thereof are always considered as unfit for use. By this it can be seen the ancients have already feared the germ of disease.

All wines such as יין מסך *yayin mesech*, drugged

[1]Christison on poisons.

wines are interdicted, as such wines might influence or propagate gout or cause other afflictions.

Even the manner in which food should be cooked and prepared is laid down, for example the Talmud asserts that an egg cooked in sand, as is done in hot climates, or laid beside a hot kettle, or wrapped in towels, is not proper food to be consumed, this may appear to us as senseless, but nevertheless it stands to reason that an egg cooked in the above described manner may become partly hatched. By this it can be seen that hatching eggs by artificial temperature is not entirely a modern invention.

One, and above all, of the hygienic laws of the Jews is the separation of women during their menstrual period הלכות נדה *halchot niddah the laws of menstruation.* It is the duty of every husband at least two or three days prior to the expectation of that period to separate from his wife not only from the bed, but even the chamber they occupy if possible, or if any spots be visible upon her clothes, or she should inform him of it, he should at once sever from her and they must remain apart during all the period of her sickness and until six days thereafter, and during that time they are not allowed to eat out of one vessel, and it is advisable not to dine at the same table, nor in any way play or joke with each other. This last to prevent the awakening of passion. In six days after the period has ceased, she must test herself with a clean white cloth, if no red spots appear she must then go מקוה *mikvah,* pool or טבילה *tabilah,* bathing. Bath houses for that purpose are generally erected by Jewish congregrations, but the wealthy people sometimes have them erected in their residences. The bathing must be done by immersing so that every hair on top of her head is covered with water; her legs and arms must be spread in order to allow the water to surround all parts of the body. Gentlemen, I can not describe in less than a volume the laws and regulations of separation.

The same laws as the above are applied to newly married women: After the first intercourse תשמיש *tashmish,* they must make the separation and go through the same *modus operandi* as a menstruant. This to allow healing.

They are also instructed how to visit the sick בקור חולים *bakur cholim,* whom they shall visit, and in what diseases. Not only that, but even the clothes they wear are regulated, how they should be made and of what fabrics. The cloth must not be a mixture שעטנז *shatnez,* of linen and wool; this may appear very frivolous to us, but I say there are sanitary measures even in this, as these two textures counteract each other, wool retains its temperature, is a non-conductor of heat and keeps the body warm, while linen is a conductor of heat and cools the body. The custom of burying their dead in linen, is done for no other purpose but to prevent infection, as wool is a rétainer of contagious and infectious matter. Pasteur's experiments are but too fresh in our minds. I do not know whether he attributes the contagion of the sheep to the animal body itself or to the wool. I can not conceive that an animal interred for many years could still contain contagion, as the body would be entirely decomposed. But I do believe the wool might retain its infection for hundreds of years, especially if buried in dry ground.

In accordance with the above proofs it can be seen, as heretofore stated, that the laws of morals and health were with the Jews from their earliest history. And those who are acquainted with the Talmud, which is based upon the fundamental principles of the Bible, know that there is not another religious sect or creed in the universe, with the exception of the Jews, and the Mohammedans, who have in their theology, hygiene and diet. It is an established fact that the Koran[1] is taken from the Talmud, or the Mohammedans would not have it.

One thing is certain; the Mosaic and Talmudic laws have accomplished more by their terrific fear of some unknown power that they inculcate than all the legislation of the civilized world with their rigid pains and penalties.

Some say the works of Shakespeare were written 200 years before their proper time. I have just as much reason to believe that the Talmud was written a thousand years ahead of its time. It appears to have every field of literature cultivated, and those pertaining to health to the utmost extent.

You may ask, what have the Jews to show for their sanitary or hygienic measures? Gentlemen, I will say they have a superior claim to the respect of society. Statistics speak for them and show that they produce a vast amount less of venereal diseases than any of the civilized or uncivilized nations on the face of the earth. Above all, I believe that the sanitary mode of Jewish life has great tendency to cultivate the brain and mind.

The Jewish race appears to produce a greater per cent. of great men (according to their numbers) in every branch of science and art than any other sect or creed on the earth. Who does not know the great composers and writers in music, Meyerbeer, Mendelssohn, Rubenstein and others? Not a word will I say about the stage, as the name of Rachel and and others, is but too well-known. Not a whisper of the great thinkers and poets, Heine, Phillippsohn, Zunz and Auerbach, but we cannot afford to skip the names of Spinoza, Acosta and Moses Mendelssohn.

As commercial men their superior is not known. As financiers they rule the world. There are, however, very few who follow the profession of law, as they are generally debarred from practice in many of the European countries, but if permitted, they are not excelled in that profession. The American bar is proud of and honors the name of Judah P. Benjamin, of New Orleans, his attainments have made him a great man in the courts of England.

I was astounded after various inquiries and correspondence with all the medical colleges of the world, which was done by me at great labor, that 67 per cent. of Jewish physicians maintain professorships in medical colleges; 36 per cent. are medical authors. Medicine appears to be the favorite study, and as a rule, they always maintain a high standing. There have been many Jewish physicians in a professional

[1] Geiger, Was hat Mahommed aus dem Judenthum genommen

capacity at the courts of famous kings. The celebrated[1] Maimonides was physician to King Salaheddin, of Egypt, already mentioned in the fore part of this paper. Rabbi Meir to the King of Castile; Zedekiad, physician to Louis the Pious of France, and Montalto to Queen Marie of Medicis.

It was once decided by the fathers of the church that a Jew could not act as medical adviser to crowned heads, and yet Pope Boniface IX and Pope Julius III appointed Jews for their body physicians. [2]Of Francis I, it is related, while once seriously sick, he requested Charles V, Emperor of Germany, to send him a Jewish physician. The Emperor sent a convert, but Francis refused to accept his services, and said he had plenty of Christian physicians, he needed the services of a Jew.

By the foregoing it can be seen that what I have asserted, to wit: that the Jewish hygiene cultivates the mind, has already been recognized as a fact by the highest authorities of church and crowned heads.

In conclusion I will say it is high time for us to review the past history of that nation, and ascertain, while the nineteenth century still lingers, if it is not best for us to adopt some of their codes in life. Let us no longer berate a nation which was so brave and full of humility. Let us throw away the idle writings of priestcraft, through which we are deprived of writing our scientific attainments with those of the ancient Jews, and dividing the responsibility of health and life.

I may have accomplished little by these researches, but I have at least pointed out a subject in which science is deeply interested. As it has long been my desire to discourse with my honored colleagues, especially those with whom I feel connected by conjugality of sentiment on the subject of Jewish hygiene, I therefore trust that the Section of State Medicine of the American Medical Association will encourage at least some of these extraordinary measures of health, which will, I am confident, tend to final good in all science, all principles, all feelings, and all actions.

MEDICAL PROGRESS.

SURGERY.

SUTURE OF THE MEDIAN NERVE.—Prof. Tillaux has read a remarkable paper before the Academy of Science (*Union Médicale, Medical Times*) upon two cases of secondary suture of the median nerve, with rapid reëstablishment of functional activity in the paralyzed parts. By secondary suture he means the suture which is only applied at a period more or less remote from the division of the nerve, when the two ends have become separately cicatrized. The first case was that of a woman who, while cleaning a window, cut her right wrist so deeply as to completely divide the median nerve. Primary suture of the nerve was not practiced, and after the healing of the wound all the parts supplied by the median remained completely paralyzed. Incapable of working for her living, the girl was admitted to the hospital four months after the accident, and the wound, on examination, showed a rectilinear transverse cicatrix, painful on pressure, on the wrist. At this spot could be felt a tolerably distinct prominence, which was supposed to be formed by the central end of the divided nerve. The whole of the parts supplied by the median nerve were completely insensible to contact, to pain, or to temperature, the patient not feeling the slightest sensation on plunging the ends of the paralyzed fingers into boiling water or picking up burning coals. The muscles of the thenar eminence were atrophied, and the opposing power of the thumb was lost. The paralyzed parts were colder than those of the opposite side, and the skin had assumed a slightly violaceous color. The operation was as follows:

Chloroform being administered, the two ends of the nerve were exposed by a vertical incision, and were found separated from each other by about a centimetre, the central end being enlarged and that of the periphery tapered off. The extremities of both of these were excised by scissors, so as to get fresh surfaces of the same diameter; and instead of employing forceps, which might have contused the nerve, a very fine needle, armed with a *crin de Florence*, was passed from one end to the other. This was gently tightened until perfect juxtaposition of the two surfaces of the section was secured, carefully preventing the neurilemma becoming folded in towards the axis of the nerve, which might have impeded reunion. The thread was tied, cut close to the knot, and left in the wound. The external wound was drained, united by silver wires, and covered with a Lister dressing—the most minute precautions of the antiseptic method having been observed. The hand was maintained motionless in a state of flexion during a whole week, without the dressing having been touched. On the eighth day union was complete. By the third day the index and middle fingers felt the contact of a pin carried gently along their surface, and the sensibility continued to increase from day to day, so that six weeks after the operation the patient left the hospital, the sensibility and motion having returned to such a point that she could work at the needle or crochet, and was in a condition to resume her occupation.

(2) Exceptional cases are rarely solitary, and in the hospital was a woman suffering from an affection of the abdomen, who fourteen years previously had cut her wrist with a bottle, with the effect of producing the same paralytic symptoms with those related above. Witnessing the success of the operation in that case, she requested that it might be performed in her own, and the result of the operation was complete success.

In what way did innervation become reëstablished? It would seem natural to suppose that it was through the immediate approach and rapid junction of the central end of the nerve with the peripheral end. But Professor Vulpian declares this to be impossible,

[1] Post-Biblical History, page 65. Sigmund Hecht.
[2] Post-Biblical History, page 66. Sigmund Hecht.

inasmuch as the peripheric end of the nerve, totally degenerated, had lost all property of transmission, as is invariably demonstrated by experiments on animals. Professor Ranvier, who consented to examine the portions of the nerve cut off for the purpose of vivification, declares also that this explanation is impossible, since the nervous tubules, the agents of transmission, have disappeared in the peripheric end, leaving nothing to be found but fibrous tissue.

The Treatment of Sciatica by Congelation.—Dr. Debove (*Bulletins et Mémoires de la Société Médicale des Hopitaux de Paris*) in considering the use of revulsives in sciatica and their beneficial action through the excitation of the extremities of the affected nerve, found that they were always restricted in the number of nerve filaments influenced, as it would not be proper to apply a vesicant or cauterization from the hip to the calcaneum. It was therefore suggested to him to obtain this revulsion by means of congelation, for the parts could be congealed and resume the integrity of their functions. There was at all events no objection to making the experiment, as the greatest evil would be the production of an eschar, which was an ordinary result in the classical treatment by cauterization.

Accordingly he used the chloride of methyl, which gives a temperature of 9.4 F., or, in hastening its evaporation by a current of air, 4.7 F., and which is readily applied. His first patient had been treated at various times by cauterization with the red hot iron and without benefit, and had been confined to the bed for a month. He applied the remedy over the painful surface from the hip to the external malleolus; a minute later the patient, who up to that period had been unable to put his foot to the ground, walked without limping and declared himself cured. He was astonished at the relief, Dr. Debove was none the less so himself, but he recalled the influence of the imagination in affecting marvelous therapeutic cures, particularly in sciatica, which has been cured even by cauterization of the lobule of the ear. But since this first case he has been able to repeat his experience sufficiently to warrant him in affirming that this method effects a speedy and constant cure. This case had been affected by the disease for three months and has had no return of it. His other cases were either relieved at once or had slight relapses which were entirely relieved by a second use of the chloride of methyl.

These patients were affected with simple neuralgic sciatica of the rheumatismal form, existing from fifteen days to three months, they all suffered so severely as not to be able to put foot to ground.

The apparatus used was the siphon of commerce, containing chloride of methyl, costing about $1.20 a quart. To the extremity of the beak of the siphon, he adjusts a lead pipe provided with a small orifice, to allow of a proper direction of the jet, and to prevent waste. It is applied over every painful portion from the sacrum to the malleolus, and the skin is immediately seen to congeal, turn white and become hard as stone. The patient complains of a painful burning sensation, but, so say the patients, it is nothing like as painful as cauterization.

The skin rapidly reacts from the congelation, which leaves a more or less marked erythema—the most that has been produced was a slight vesication—never an eschar. From that time on the patient is relieved and able to walk, a new application is made where the pain reappears at one or two points, the following days the relief continues, or perhaps there are one or two painful points, which are again congealed and entirely relieved.

ANATOMY AND PHISIOLOGY.

Decussation of Nerves.—According to the *Lancet's* summary of the clinical observations of M. Pitrès, a considerable modification will have to be made in the prevailing opinion that in all cases the pyramidal tracts decussate at their well-known site in such a manner that the bulk of the fibres of one side passes over to the lateral column of the spinal cord, whilst the small remainder continues downwards in the anterior column. From careful clinical observation, it seems not at all improbable that further complexity ought to be introduced into the anatomy of the nerve-paths in the brain. Secondary degenerations of cerebral origin are sometimes exclusively confined to the opposite lateral column of the cord; sometimes to the opposite lateral column and the internal part of the anterior column of the same side as the cerebral lesion. Pitrès has also collected ten cases of unilateral cerebral lesion, in which the secondary degeneration occupied both lateral columns of the spinal cord. The cerebral disease varied in its nature, extent, and site; the secondary sclerosis traversed the peduncles, pons, and anterior pyramid, and then abruptly became bilateral below the decussation of the pyramids. The secondary changes were sometimes exactly symmetrical, sometimes more marked on the same side. The columns of Türck were generally spared, or presented but slight damage, whilst the other structures of the cord were normal. M. Pitrès has sought to explain the coexistence of symmetrical medullary lesions with unilateral disease of the brain. His explanation is founded on the individual variations of the decussation of the pyramids as described by Türck and Fleming. There may be simply a crossed pyramidal tract, or there may be a direct as well as a crossed pyramidal tract, and each may bear almost any numerical relation one to the other. Further, the pyramidal tracts of the two sides of the brain may or may not proceed after the same plan; the decussation may be complete for one tract and incomplete for the other. In certain subjects it seems possible that the fibres of one pyramidal tract in the bulb may split into two portions, one of which may proceed down the opposite lateral column, while the other descends in the lateral column of the same side. The disturbance of balance and progression appears to be more persistent and more grave when the secondary sclerosis is bilateral than when it is unilateral. Partial paraplegia, exaggeration of the knee-jerk, and contracture of the lower limbs may exist, however, where the sclerosis is unilateral.

MOVEMENTS OF THE UTERUS, by Frommel (*Zeitsch. f. Geb. und Gyn.*)—Experiments made since the time of Harvey have proved that it is the muscular force of the uterus which expels the fœtus. This fact has been verified in the woman, in cases of paralysis, and fœti have come into the world after the death of their mothers.

Kehrer concluded from his experiments, that it is the vascular pressure and not the quality of the contents of the vessels that determines the muscular movements, and that the centres for the rhythmic contractions are to be found in the brain and cord.

In 1864 Frankenhäuser announced that he had found the centres for contractions of the uterus in the cerebellum and cord, the force being transmitted by the great sympathetic; in his theory the sacral nerves were the moderators for uterine contractions. In 1867 he declared that there were ovarian nerves, independent of the uterine plexus, which had motor filaments going to the uterus.

Spiegelberg believed that the uterus had its own motor centre. Rein has confirmed that idea, at least so far as the cerebro-spinal system is concerned; for, having cut all connections between the uterus and that system, he has seen the organ contract, and comes to the following conclusions:

1. The uterus is capable of spontaneous rhythmical contractions.

2. They can be produced in all the stages of its development. They are more regular with females that have borne children than with the nulliparæ or with those who have not reached their complete development.

3. A considerable lowering of the temperature of the body lessens these contractions, without depriving them of their energy, if the temperature is elevated, the contractions are accelerated, and in high fever they are checked.

4. The regularity of the uterine function depends directly upon the condition of the temperature of the body. An elevated temperature has a particularly perturbating influence.

5. Disturbances of the circulation of the blood have a considerable influence upon the movements of the uterus; compression of the vena cava produces the same effect after a longer interval.

6. The uterine contractions do not depend upon any external centre.—(*Annales de Gynecologie*).

MATERIA MEDICA AND THERAPEUTICS.

DETECTION OF BRUCINE AND STRYCHNINE.—The following tests for these substances are proposed by Dr. O. Lindt (*Pharmaceutical Journal and Lancet*). For brucine a convenient test is selenic acid containing nitric acid (five drops of selenic acid, of sp. gr. 1.4, and one to two drops of nitric acid, of sp. gr. 1.2). If the fatty oil is first removed from sections of strychnos nux vomica and S. ignatii by petroleum ether and this reagent used, the laminated cell-walls quickly take on a bright red color, which gradually turns to orange and yellow, while the cell cavity and the granular substance contained in it remain uncolored, indicating the absence of brucine. Nitric acid alone does not answer, the coloration of the alkaloid being marked by the formation of xanthoproteic acid. For the detection of strychnine, Lindt discards the potassium bichromate reaction, because the violet color is developed only in immediate contact with the crystal; and the solution of strychnine in sulphuric acid escapes so rapidly from the preparation that no conclusion can be drawn from a subsequent straining as to the original position of the alkaloid in the nux vomica seed. But it is readily shown by a solution of ceroxide sulphate in sulphuric acid, if the fatty oil, grape sugar and brucine have first been removed by maceration in petroleum ether and absolute alcohol. The reagent imparts a violet-blue color to all the thickening layers of the cell-walls. But the color quickly disappears, while the deposits of albumen assume a bluish opalescent tint, which finally turns to a reddish-violet. The interior of the cell becomes of an intense red color. The reagent retains its activity for a considerable time. The microscope is, of course, necessary to follow all the details of these microchemical tests.

MEDICINE.

NEPHRITIS CONSEQUENT ON PAROTITIS.—During last October mumps or idiopathic parotitis appeared in Berlin as an epidemic. It was more violent in the environs than in the city. Not many children escaped, and a good proportion of adults were attacked. Dr. Croner has communicated to the Berlin Medical Society the history of a patient suffering, during this epidemic, from parotitis followed by nephritis. The patient, a boy, aged six, had an attack of mumps, which followed its usual course. The child obstinately kept in bed, although his general condition was improved. On the fifth day fever appeared, and the right parotid gland was considerably swollen. The fever diminished after 24 hours, the child regained his appetite, and his illness bid fair to follow the usual course. He complained of feeling ill, and would not leave his bed. A fortnight after the child suffered from symptoms of parotitis, his eyelids were swollen. Dr. Croner, on examining the child, observed œdema of the dorsal surface of the hands and feet, also ascites to a slight degree. The urine was also scanty, containing blood, and was highly albuminous. These symptoms of nephritis became modified. The patient had suddenly a fresh attack fever six days after the first indications of nephritis were observed. The submaxillary glands were enlarged and painful. This condition slowly improved, but subsequently all the symptoms reappeared, and the right submaxillary glands were enlarged, and caused pain. About the middle of January of this year, albumen disappeared from the urine; the albuminuria had continued during five weeks. Convalescence followed, and the child was completely cured. Dr. Croner has found but one similar case on record, published by Henoch. He observes that the opposition met with from the infant patients, and especially from the parents, which prevents introducing a stylet into Steno's duct, in order to obtain some of the glandular secretion, prevents researches relating to the infectious element of parotitis.—(*British Medical Journal.*)

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KARL BRAUN'S LAST ONE HUNDRED LAPAROTOMIES.—Professor Karl Braun, of Vienna, has recently published an interesting and instructive account of his last one hundred laparotomies.[1] The operations, indicated by tumors in connection with the female genital apparatus, were performed in the Vienna Gynæcological University Clinic, No. 1, of the General Hospital, usually in the presence of numerous physicians and students, during the last five years—1879–1883, inclusive. The results of the operations are as follows:

Of all laparotomies, 73, or 73 per cent., recovered, 27, or 27 per cent., died; of 90 laparotomies, with exclusion of ovarian carcinoma, 70, or 77 per cent., recovered, 20, or 22 per cent., died; of 74 ovariotomies and parovariotomies, in cases of cystomata, 60, or 81 per cent., recovered, 14, or 18 per cent., died; of 10 ovariotomies in cases of ovarian carcinoma or sarcoma, 3, or 30 per cent., recovered, 7, or 70 per cent., died; of 16 myomotomies, with or without hysterectomy, 10, or 62 per cent., recovered, 6, or 37 per cent., died; of 64 ovariotomies, without hysterectomy, 54, or 85 per cent., recovered, 10, or 15 per cent., died; of 10 ovariotomies with hysterectomy, 6, or 60 per cent., recovered, 4, or 40 per cent., died; of 56 ovariotomies in cases of pedunculated cystomata, 49, or 86 per cent., recovered, 7, or 12 per cent., died; of 18 parovariotomies, of the broad ligament, 11, or 61 per cent., recovered, 7, or 37 per cent., died; of 9 enucleations of parovarian cystomata, 7, or 77 per cent., recovered, 2, or 22 per cent., died; of 3 partial excisions of cystomata (*Abkappungen*) and drainage of the sac, 1, or 33 per cent., recovered, 2, or 66 per cent., died; of 7 cases of cystomata, in which the viscous contents were removed by the hand, 5, or 71 per cent., recovered, 2, or 28 per cent., died.

Of the 74 ovariotomies, the recoveries and deaths resulted as follows:

After removal of
- 5 dermoidcystomata, 5 recoveries, or 100 per cent.
- 7 unilocular cysts, 7 recoveries, or 100 per cent.
- 1 *fibroma ovarii*, 1 recovery, or 100 per cent.
- 2 cystosarcomata ovarii, 2 recoveries or 100 per cent.
- 1 gelatinous tumor, 1 recovery, or 100 per cent.
- 58 myxoidcystomata, 44 recoveries, or 75 per cent., 14 deaths, or 24 per cent.

Of 10 ovariotomies, on account of *carcinoma ovariorum*, 3 survived the operation, but 2 died, one year afterwards, of a return (Rezidive) of the disease; the recoveries, therefore, are 1, or 10 per cent., deaths, 9, or 90 per cent.

Of 5 simple myomotomies, 4 recoveries, or 80 per cent., 1 death, or 20 per cent., were recorded. Of 11 myomotomies, with hysterectomy, 6 patients, or 54 per cent., recovered, 5 patients, or 45 per cent., died.

Of 9 myomohysterectomies with extraperitoneal treatment of the pedicle, 5, or 55 per cent., recovered, 4, or 44 per cent. died.

Of 2 myomohysterectomies with intraperitoneal treatment of the pedicle, 1, or 50 per cent., recovered; 1, or 50 per cent., died.

Of 3 simple myomotomies, with extraperitoneal treatment of the pedicle, 3, or 100 per cent., recovered.

Of 2 simple myomotomies, with intraperitoneal treatment of the pedicle, 1, or 50 per cent., recovered, 1, or 50 per cent., died.

Of 3 myomotomies, and 11 ovariotomies, the patients were pregnant. They made excellent recoveries.

From this analysis the following table of recovery percentage is constructed.

	Per cent.
Dermoidcystomata, unilocular cysts	100
Fibroma ovarii, simple myomotomies	100
Pregnancy in myomotomies	100
Pregnancy in ovariotomies	100
Ovariotomies in cases of pedunculated cystomata	86
Ovariotomies without hysterectomies	85
Ovariotomies in cases of cystomata, and cysts in general	81
Myomotomies without hysterectomies	80
Laparotomies without *carcinoma ovariorum*	77
Enucleations in cases of parovarian cystomata	77
Ovariotomies in myxoid cystomata	75
100 laparotomies (with inclusion of carcinoma)	73
After removal of viscous, sac contents, by the hand	71
Myomotomies and hysterectomies	62
Parovariotomies of the broad ligaments	61

[1] *Wiener Medizinische Wochenschrift*, 1884. Nos. 22, 23, 27, 29, 30.

	Per cent.
Ovariotomies with hysterectomy	60
Myomohysterectomies and extraperitoneal treatment of pedicle	55
Myomotomies with hysterectomy	54
Myomohysterectomy and intraperitoneal treatment of pedicle	50
Myomotomy and intraperitoneal treatment of pedicle	50
Parovariotomy, with partial excision and drainage of sac	33
Ovariotomies on account of carcinoma or sarcoma	30
Since death occurred in two cases, at the expiration of one year after the operation, the recovery percentage, after malignant ovarian tumors is only	10

PROFESSOR KARL BRAUN'S OPERATIVE METHODS IN LAPAROTOMY.—Professor Karl Braun, of Vienna, is justly considered one of the greatest obstetrical and gynæcological surgeons of the day. Aside from highly original, intellectual endowment,—cultivated and developed by the vigorous, scholastic training of the *Gymnasium*,—local conditions have conspired to make him the great authority he is. From March, 1849, to Sept., 1853, Karl Braun acted as sole assistant in the Vienna Obstetrical Clinic; from 1853 to 1856, he acted as head-master of the Trieste Lying-in Hospital; in Dec., 1856, he returned to Vienna, and assumed control of the Obstetrical Clinic. In October, 1873, the Lying-in Department of the Vienna General Hospital was divided into three clinics. Karl Braun took charge of the First Clinic, while the Second and Third Clinics were placed respectively in care of Professors Josef Spaeth, and Gustav Braun. The colossal material which has come under Professor Karl Braun's observation, during his thirty-five years of uninterrupted professional activity, is difficult of adequate conception. During twenty-five years, 1849–1874, inclusive, he superintended 100,000 labors. Since 1877, he has performed Cæsarean section, with hysterectomy,—Porro's operation,—twelve times. In another editorial, we noticed at length his laparotomy statistics, as collected from 100 cases, occurring during the last five years, 1879–1883, inclusive. His operative methods have always attracted attention, and contributed much to the comparative perfection of the *technique* of laparotomy. A brief review of his operative *technique* appears in the *Wiener Medezinische Wochenschrift*, Nr. 30, 26. July, 1884.

As regards antisepsis, the rules of Thomas Keith are observed. The operating room is thoroughly cleansed the night before the operation, and thoroughly fumigated with burning sulphur. The room is then freely ventilated, and, in winter, moderately heated. One hour before the operation the room is filled with the vapor of an aqueous solution of carbolic acid by means of a steam atomizer. This preliminary, one hour's disinfection, constitutes the sole function of the spray apparatus. The patient receives a bath and is gently purged, the day before the operation. In the ante-room she is anæsthetized with the English chloroform mixture, the *mons* shaved, bladder emptied, vagina disinfected, skin surface of the abdomen thoroughly washed with a soft soap and 5 per cent. carbolic acid solution; the abdomen is covered by warm compresses, and a caoutchouc cloth, with a long central slit; the extremities, well enveloped in flannels, are fixed. The operator and assistants wear clean clothes. Their fore-arms and hands are thoroughly disinfected by means of soft soap, nail-brush, potassium hypermanganate and dilute hydrochloric acid, thymol and salicylic acid water, or one to two thousand solution of corrosive sublimate. The instruments are polished, passed through a flame, and disinfected with carbolic acid. Sponges and fine, disinfected, hemmed patches of shirting muslin lie for weeks in 5 per cent. carbolic acid solution. Immediately before use, they are washed in pure water, and then placed in a warm aqueous solution of thymol, 1 to 1,000.

In cases of cysts and cystomata with fluid contents, a large, flat protection sponge is placed beneath the lower angle of the abdominal incision, and the fluid removed by a thick trocar; before the removal of the trocar the inner wall of the cyst is washed out with lukewarm thymol water. The cyst, thus emptied, is withdrawn through the abdominal wound by suitable forceps. Adhesions to the parietal peritonæum, omentum or tubes, when slight, are peeled off from the cyst wall by the index finger. In cases of intraligamentous cystomata, when adhesions to the mesocolon and large intestine exist, it is better to cut into the *mesenterium*, to work with the finger-ends under that structure on the cyst wall and attempt enucleation. When adhesions to the colon of 3 centimetres extent exist, it is advisable to cut out a portion of the disinfected cyst wall, and allow it to remain on the mesocolon, in order to prevent rupture of the intestinal canal.

When the pedicle, in cases of ovarian cystomata, is long enough, it is securely compressed in a clamp, ligatured, below the clamp, in halves, by the figure of eight turn; subsequently the ligature is made to encircle the entire pedicle. The ligature selected for this purpose is of strong silk. Above the clamp the pedicle is cauterized with the thermo-cautery, allowed to cool off, and, if perfectly bloodless, returned to the abdominal cavity. When the omentum, tubes, or thick adhesions are divided, the procedure is iden-

tical. After enucleations of intraligamentous cystomata, bleeding vessels are ligatured, the folds of the broad ligaments and mesocolon are brought into exact apposition by the running or interrupted suture. In applying these sutures, it is necessary to carry them deep down to the floor of the peritoneal sac—due care being observed to exclude the ureters—in order to secure the nicest approximation of wound surfaces. When intraligamentous cystomata cannot be removed from the uterus, they must be amputated and treated by the extraperitoneal method.

When intraligamentous cystomata can neither be removed from the uterus, nor amputated, it is best to ligature the diseased broad ligament close to the uterus, remove the outer portion of the diseased broad ligament, and return the uterus to the abdominal cavity. When adhesions between a cystoma and the colon cannot be divided, and the ureters are similarly attached, the cystoma may be partially excised, and the rest of the sac sewed into the abdominal incision, and the cavity of the sac drained.

In solid tumors of the uterus, operative procedure is identical with that of Porro's operation. In pedunculated, solid uterine tumors, it is well to attempt to preserve the ovaries and the uterine cavity in an intact condition. The pedicle is ligatured with a rubber cord, held in place by a perforated shot, compressed with a Leiter's wire ecraseur, and the stump thoroughly cauterized. After the removal of the tumor, the pedicle is pierced between the ligatures with one or two long needles placed transversely, and treated by the extraperitoneal method. When the solid tumor is attached to the uterus by a broad basis, two ligatures, the rubber cord and the wire ecraseur are placed around the base of the tumor, the circulation interrupted and local anæmia produced. The tumor is then rapidly divided by a circular incision through its greatest circumference; the lower half of the tumor is enucleated out of its tough capsule by the fingers, a pedicle formed, which can then be treated in the usual extraperitoneal manner. In this way the uterus and both ovaries can frequently be preserved.

In general, the pedicles of ovarian tumors are returned to the cavity of the abdomen, while the stumps, in cases of myomotomy and myomohysterectomy, are treated by the extraperitoneal method.

Every bleeding vessel in peritoneal adhesions is surrounded with a silk ligature, and securely tied; parenchymatous hæmorrhage of the peritonæum is controlled by light touches of the thermo-cautery, heated to a gray glow.

Before closure of the abdominal incision, the *toilette* of the peritoneal cavity is completed with the greatest care, and the air, which enters during operation, is pressed out.

In closing the abdominal incision, the upper and lower angles of the wound are surrounded by silk sutures, which include the peritonæum. Silver sutures, with lead plates, and perforated shot, separated by a distance of three ctm., are then passed transversely, so that the peritoneal surfaces, on either side, are brought into accurate apposition, to the extent of at least one ctm., and are compressed in this position. Deep and superficial sutures of silk complete the union of the incision.

Over the abdominal wound, after suitable cleansing, a powder of sodium benzoate is thickly dusted. Finally, a heavy Lister dressing of iodoform, and carbolic acid gauze, absorbent cotton and mackintosh is applied.

Chicago Floating Hospital Association.—The object of this Association is to maintain one or more floating hospitals on the lake, near the city, with all the necessary accommodations for infants and young children with their mothers and nurses, including boat to take them to and from the same at stated hours each day during the hot months of summer, thereby giving the sickly children of the poor all the benefits of cool and pure air a part of each day. There is probably no other public charity in the city that accomplishes as much good in promoting health and saving life, with the expenditure of the same amount of money. The following official report will show the work and expenditures of the season just closed:

Chicago, Ill., Sept. 16, 1884.

The Floating Hospital Association, in making their annual report, desire to thank those who have so generously provided the means for their summer work.

The first boat was sent out to the pier on Monday, July 7, and the season was continued to and included Friday, September 12, a period of ten weeks—the longest in our history; 21,489 persons were cared for during this time.

$1,761.71 has been received,
$1,428.00 has been expended,
$ 333.71 we have now on hand,

which it is proposed to use in the purchase of new hammocks, and other necessaries, made imperative by the very decided increase in the attendance from year to year. It was feared at one time during the summer that we might not be able to go on, but the very liberal support given us by members of the Board of Trade and other constant friends, placed the matter beyond doubt. No accident of any kind occurred, and nothing has marred the success of the work. For

ice and milk we were indebted, as we have always been, to the kindness of the respective dealers.

JOS. STOCKTON, Pres.
C. L. RUTTER, Sec.

List of donations other than cash, season of 1884:

Coal. Robert Law.

Ice. Washington Ice Co., A. S. Piper & Co., E. A. Shedd & Co., H. P. Smith & Co.

Crackers, for the whole season. H. H. Kohlsaat.

Milk. Kee & Chapell, J. J. Solon, William C. Hill, Duff Brothers, D. McCarthy, — Fisher, W. Adams.

Sundries. Edwin Heywood.

NEW WORKS ON PRACTICE OF MEDICINE.—Quite opportune, so far as relates to students who may be about to select text-books, two new works on Practical Medicine have just made their appearance—one from the publishing house of William Wood & Co., New York, by Alfred L. Loomis, M.D., LL.D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York, Visiting Physician to Bellevue Hospital, etc.; and the other from the publishing house of Jansen, McClurg & Co., Chicago, by Nathan S. Davis, A.M., M.D., LL.D., Professor of the Principles and Practice of Medicine in the Medical Department of the Northwestern University, known as the Chicago Medical College, Visiting Physician to the Mercy Hospital, Chicago, etc.

Both these works will be noticed more at length in the proper department of the JOURNAL at an early day.

CHOLERA IN EUROPE.—The epidemic has continued with unabated severity in Italy during the last week. During the 24 hours ending September 17, there were 463 fresh cases of cholera in Naples, and 265 deaths. On the 18th there were 507 new cases and 283 deaths. On the 19th the number of cases reported in Naples was 437, and in the Italian provinces exclusive of Naples there were 149 cases, making a total for the 24 hours of 586 cases, of which 343 were fatal. On the 21st in Naples, 373 cases and 146 deaths; other places, 89 cases and 47 deaths. On the 22d in Naples, 362 cases and 192 deaths. Elsewhere in Italy, 67 cases and 34 deaths. For the last date the bulletin from Spain was as follows: Alicante, 5 deaths; Elche, 5 cases, with 4 deaths; Novelda, 2 new cases, with 6 deaths; Monforte, 5 cases and 3 deaths; at Tarragona, 6 cases and 3 deaths; elsewhere, 2 cases and 1 death.

YELLOW FEVER.—The death of Captain Simpson, a yellow fever patient, is reported at the Quarantine Hospital, Boston, Mass., under date of September 18. On the 21st, a severe case of yellow fever was discovered in the upper story of the Hotel Espanol, at No. 116 West Fourteenth street, New York City. The patient was Domingo Morales, who arrived on the steamer Newport from Havana on the previous Tuesday. The vessel with its cargo had been detained at the quarantine, but the passengers, 36 in number, after inspection by the health officer of the port, and appearing free from disease, were allowed to proceed to the city and became dispersed.

MEDICAL COLLEGES.—During the week just closing, all the regular medical colleges in this city have opened their annual courses of instruction; and the same is true of nearly all the medical schools in this country.

SOCIETY PROCEEDINGS.

MASSACHUSETTS MEDICAL SOCIETY.—SUFFOLK DISTRICT.

SECTION FOR CLINICAL MEDICINE.

Dr. G. L. Walton read a paper upon Hysteria as Affected by Removal of the Ovaries.[1]

Dr. John Homans spoke as follows: I think this operation cannot yet be definitely judged or accurately valued. I consider it to be still on trial. Many successful cases are reported and others which are not favorable. Alienists and psychologists are divided upon this subject, some recommending the operation in selected cases, while others are not friendly to it under any circumstances. The removal of the ovaries should be thought of in relation to painful menstruation, and consequently in those conditions which depend upon or are induced by painful menstruation. In skilful hands the operation of ovariotomy and the other more common operations of abdominal surgery are no longer so dreaded as they were a few years ago, and the results of ovariotomy to-day are equally as favorable as those of capital operations of the extremities. Abdominal surgery is different from other surgical procedures, and cannot be taught; it must be learned by observation and experience.

Thus far I have operated upon three cases of the kind to which attention is directed in the paper of Dr. Walton. The first patient was a lady twenty-two years old, very bright and intelligent, highly educated, and thoroughly refined. Menstruation had always been irregular and painful. As the disease proceeded the patient first became hysterical, then gradually grew to be destructive, and finally became insane. It was thought that removal of the ovaries might have a beneficial effect, and the case was first brought to my notice by her friends, who sought my opinion in regard to this means of relief. There was

[1] See page 331 of this JOURNAL.

at that time great tenderness in the left iliac region with rigidity on touching the part. She had already spent one whole year in bed at her home, and had passed a year at the Adams Nervine Asylum. She had been the frequent subject of gynæcologists and of specialists of various kinds. Finally she was placed in an insane asylum and was kept quiet by means of morphia. The pain was still present in the left side and much worse at the menstrual epoch. At such times the application of leeches to the *os* generally afforded some relief, but the case was gradually becoming worse and it was feared that her insanity would eventually become chronic.

In March, 1883, I removed both ovaries, with the Fallopian tubes. The patient did perfectly well, and made a good recovery from the operation. Soon she began to experience relief from the old distress, and the iliac pains entirely left her. Then the headache diminished, and she became again a bright, intelligent, and perfectly sane person. She began to write, and furnished considerable manuscript for one of the daily papers. Finally her correspondence was intercepted by the family, and it was found that she had resumed the use of morphia, using the money earned from the newspapers to surreptitiously purchase the drug. On being reasoned with, she promised to give up the morphia, which she did by gradually diminishing the dose, until for months she has taken none at all. On examination, the uterus was found to be in an infantile condition, about half the size of the thumb. From this time no unfavorable symptoms have shown themselves, and the patient and her friends consider the result as very successful.

My second case was a young lady who has had a somewhat celebrated history, from the fact that the disordered mental condition had been of some years' duration, and was of a very striking character. This patient was the subject of a scientific essay by Dr. W. B. Goldsmith, under the title of "A Case of Moral Insanity," in the *American Journal of Insanity* for October, 1883, and a few extracts from her history, as given by Dr. Goldsmith, will clearly set forth her condition. He says:

"The patient is a girl 18 years old, rather short and small, but of well-knit, muscular figure, and very active and strong. Her head is fairly well formed, though slightly inclined to the bullet pattern; her expression amiable and bright, and her general appearance calm. In her seventh year she had a severe attack of scarlet fever, followed by a marked change in her mental condition. She became easily excited; seemed unable to apply her mind, and though apparently not malicious, could not be made to obey. Her father committed suicide at about this time, and this appears to have been the first occasion when she seems to have completely lost self-control. Soon after this she was sent to school, where she caused much trouble in various ways, and the teacher declared she spoiled the discipline of the entire school. After this she became subject to violent paroxysms of temper, in which she would scream and throw herself about, and break furniture and tear clothing. When between 8 and 9 years old, she was found naked bathing with some boys, and at this time admitted that she had frequently indulged in sexual dalliance with boys older than herself. She was now placed in various "Homes," from each of which she was dismissed on account of her violent and destructive paroxysms, and because she could not be made to observe any rules or regulations. She finally was placed in the Hospital for the Insane, at Taunton, Mass., when 9 years old, and there remained four years. No intellectual impairment was there detected in her, but she was thought to be in a condition of moral insanity. Dr. W. H. Gage wrote of her, 'She was an extremely difficult patient to manage.'

"From the Insane Hospital at Taunton she was removed to a similar institution at Worcester, where she remained about twenty months, whence she was removed by her friends contrary to the advice of the hospital authorities. She remained quite well for four months, when on some trivial occasion she became much excited and leaped from the roof of a veranda, and was found screaming and maniacal on the walk below. The mania lasted two days, when she was placed in the Lunatic Hospital at Danvers. At this time her attacks of violence were generally induced by some slight disappointment or irritation, and would commence by attempting to destroy windows, pictures, or anything fragile. She was very violent toward her attendants, striking them and tearing their clothing and hair in a most vicious way. She has shown violence to every attendant with whom she has been for any length of time. Since her admission to the asylum at Danvers she has taken a variety of drugs, and exhausted the list of punishments and rewards practicable in a hospital for the insane. She has been kept thoroughly under the influence of bromides for weeks together; and the same is true for a less time of chloral hydrate; she has taken iodide of potassium, and has been overpowered by hyoscyamine; she has battled with various forms of mechanical restraint, and has demolished many; has tried every grade of ward, from the most violent, to a parole ward where she came and went at will, and all without any perceptible injury or advantage."

I operated upon this patient last July, and removed both ovaries together with the Fallopian tubes. The wound healed by first intention, and she returned home in four weeks, and has been at home ever since. She has appeared to be perfectly well since the operation. Not a drop of menstruation has appeared since the ovaries were removed. Dr. Rowe has expressed the fear that a relapse of the mental disease might recur in these cases even after one or two years. In this case any hæmorrhage seemed to be a sufficient cause for a paroxysm, and the menstrual exacerbation was thought to be aggravated by the fact that it was of hæmorrhagic character, and the removal of the ovaries seemed to be beneficial in the way of preventing this recurrent loss of blood.

The third case was not a suitable one for this operation. The mental disease was of ovarian origin, coming on suddenly soon after marriage, and might, perhaps, have been benefited by an operation at an earlier date. There was undoubtedly commencing dementia before the ovaries were removed, and the

patient's condition has become steadily worse from that time. The wound healed by first intention, and not a drop of menstruation has appeared since that time. The patient has become very violent and destructive, and has made dangerous attacks upon her attendants and upon other patients. She destroys her clothing, and has become filthy, passing her dejections in bed or in her garments. In this case removal of the ovaries has not benefited the patient, and the case has probably progressed exactly as it would have done if nothing had been attempted in the form of an operation.

It is of no use to remove the ovaries by the vagina, but if the operation is to be done at all, it should be by the abdominal incision, and the tubes should also be removed, when a much more favorable result may be expected.

Of these three cases the first may be classed as one of hystero-mania, the second as one of pure hysteria, and the third at present as advancing dementia.

Dr. Cushing inquired who it is that gives consent to a capital operation when this becomes necessary in an insane patient?

Dr. Homans replied that the consent of the guardians or next friends must in all cases be obtained, and also the consent of the patient. Few patients to whom this operation might be expected to prove of benefit are so insane as not to be able to understand and consent to its performance.

Dr. Rowe stated that he had seen many cases of each of the diseased conditions mentioned by Dr. Homans which have exhausted all the resources of asylums, but he had never thought of ovariotomy as a means of treatment. This should be henceforth taken into more careful consideration. In all capital operations the consent of the natural or constituted guardians of the patient as well as his own should first be obtained.

Dr. Putnam remarked that he had had no experience in this method of treatment of insanity. The operation would seem to commend itself even in cases in which the ovaries are not diseased. In many cases in which nervous symptoms are prominent, the cure may be aided by judicious control of these functions. In ovarian troubles it may be useful to remove the periodical stimulation of these organs. In many instances of trephining, the nervous symptoms have been benefited or entirely relieved, when no fracture was found, no depression of bone existed, or any other evident mechanical interference with the functions of the cerebral structures could be anywhere observed. In like manner the supra-orbital nerve is cut in cases of spasm of the eyelid, followed by relief to this condition. It is thought to act by removing one source of irritation to the motor centres.

Dr. Homans added that removal of the ovaries with cystic degeneration of their structure is sometimes followed by insanity. This operation is still young in its relation to mental disease, and is liable to abuse. It should be especially guarded in its application to these unhappy cases, and should be done only as a last resort. In one case in which the ovaries were removed per vaginam the condition of the patient was much worse than before the operation. If the tubes had been taken too, the result might have been different. Such a person ought not to be allowed to breed, and if anything is attempted, both ovaries and both Fallopian tubes should be removed, and thus the utmost possible good be accomplished for the patient. In one case of double ovariotomy the patient has flowed regularly and irregularly ever since that time. Removal of the ovaries does *not* cure dysmenorrhœa. This important fact should not be forgotten in advising any operation short of complete extirpation of both ovaries and Fallopian tubes.

Dr. J. J. Putnam said he had had no experience in the use of Battey's operation, but was quite prepared to believe that its effects might be beneficial both where the ovaries are diseased and even in some cases where they are not. The favorable action of the treatment in the latter group would probably be due to a restriction of the activity of the nervous system within narrower bounds.

Dr. Farlow exhibited an antiseptic pad which had been devised for the benefit of ladies while traveling or while menstruating and after parturition. It is made of coarse cheese cloth, and is filled with borated absorbent cotton, and can be easily prepared by any one. This pad is for sale by druggists at one dollar a dozen.

Dr. Fitz showed a series of specimens from a case of senile gangrene operated on by Dr. Warren, and reported upon by him at a meeting of the Society for Medical Improvement March 24, 1884.[1] No untoward symptoms occurred till within twenty-four hours of death, and the appearance of the wound was favorable till that time. At the autopsy the edges of the wound were firmly adherent throughout the greater part of its circumference, and there was no discoloration or swelling. Both popliteal and interior tibial arteries were found calcified just below the popliteal space, and both contained thrombi. Venous thrombosis extended upwards from the amputated stump into the femoral vein, terminating just below Poupart's ligament. The thrombus was pale-red, friable, and softened centrally.

Several branches of the pulmonary artery of both lungs, at least a line in diameter, containg reddish-gray thrombi, and at the base of the right lung there was a peripheral nodule of hæmorrhagic infarction of the size of a walnut. Both lungs were œdematous, and the right pleural cavity contained four ounces of opaque pink fluid, the pleural surfaces being besmeared with a thin yellow membrane. There was no necrosis of the pleura.

The spleen was more than twice the usual size, intimately adherent to the abdominal wall and to the omentum. It was dense and heavy, the surface irregularly depressed and nodulated from the presence within the organ of numerous nodules of anæmic necrosis, varying in size from that of a plum to that of a hazelnut. These patches were often porous on section from the presence of numerous cavities containing a relatively clear fluid. Between the necrotic patches the spleen was indurated and reddish-gray

[1] See Boston *Medical and Surgical Journal*, 1884, xv, 340.

in color, while scarcely a trace of splenic structure was to be found normal in color and consistency. A circumscribed patch of thickened intima of the aorta was present, which included the origin of the cœliac axis and the superior mesenteric artery. The former was entirely occluded by fibrous tissue, and the calibre of the latter was diminished one-half for a short distance from the aorta, and then was considerably dilated.

The hepatic branch of the cardiac axis was dilated, the splenic artery was narrowed, its walls thickened, and its cavity completely obliterated throughout its entire course by means of an adherent, dark-red, firm thrombus. The splenic vein was also obliterated by a reddish-gray, centrally-softened thrombus, which was continued into the portal vein. The trunk of the latter was filled with the thrombus which extended into the hepatic branches of this vessel.

Peripheral portions of the liver showed a nutmeg appearance, and a nodule of anæmic necrosis the size of a plum was found.

There was a varicocele of the right side, the spermatic vein entering the right renal vein. A moist, dark-red, distending thrombus was continued from the immediate vicinity of the testicle into the right renal vein, whence it extended toward the inferior vena cava as a thrombus the size of the tip of the little finger.

The chief interest of these specimens lay in the evidence of long-standing serious disease without striking symptoms at the time of the operation ; also in the comparatively slight alterations of the liver, despite the obliteration of the cœliac axis and the obstruction of the portal vein. Embolism of the pulmonary artery was to be regarded as the immediate cause of death, while the thrombosis of the renal vein was presumably of marantic origin, and might not have been of above 24 hours' duration.

Three varieties of thrombi were present, each independent in origin from the others, and neither having given rise to recognizable symptoms till the day before death, when the occurrence of pulmonary embolism was suggested. The stomach gave evidence of extensive softening of the mucous membrane, with putrefactive emphysema, although neither condition was associated with the usual favoring circumstances.

Dr. W. F. Whitney showed a specimen of Actinomycosis, the first ever exhibited in New England. It occurs in horses, cattle, sheep, etc., and has been frequently observed in Europe. This specimen was from a bull, and was sent to Professor Lyman, of the Harvard Veterinary School, and by him referred to Dr. Whitney. The disease was located on the lower jaw-bone, and was as large as the two fists. The character of the growth is fibrous, and shows large numbers of patches of a yellow color, which contain lime salts, and also masses of the parasitic growth.

Dr. Fritz stated that this disease has been observed in isolated cases in the western part of the United States, but that this is the first case reported in this vicinity. The disease can be communicated to man from the domestic animals. Usually the jaw is the part first attacked, and from this point the disease may extend to the thorax, spine, and elsewhere. The origin of the disease fungus is not yet definitely known. It has been thought by some to enter the organism by means of defective teeth.

Adjourned at 10:15 o'clock.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

London, Sept. 1884.

The fixtures for the opening of the winter session at the medical schools of the metropolis have, with one exception, been made. The session 1884-85 of the London Hospital will commence on Wednesday, Oct. 18, when the prizes for the past session, and the nursing probationers prizes will be distributed at 8 P. M. by the Lord Mayor. The medical department of King's College will meet on the 1st of October at 4 P. M., when the prizes will be distributed, and an address given by the Rev. H. Wace, principal of King's College. The session both at St. Bartholomew's and Guy's hospitals will commence on the first of October, but for neither has an opening address been announced. At St. Thomas' Hospital Medical School the session will be opened on Wednesday, Oct. 1, when an introductory address will be delivered by Sir Risdon Bennett at 3 P. M. The session of the faculty of medicine at University College will commence with an introductory lecture given by Dr. W. R. Gowers. On the same date the Middlesex Hospital will open with an introductory lecture by Dr. David W. Finlay. After the lecture the prizes awarded during the past summer and winter sessions will be distributed. At St. Mary's Hospital School the session will be opened with an introductory address by Dr. Lees on the 1st of October, and next day at 8:30 P. M., a conversazione will be held in the new school building. In connection with this hospital a new wing, containing seventy additional beds, was opened by her Royal Highness Princess Louise, on the 2nd of last month. The session at Charing Cross will this year open without an introductory address. The West London Hospital Preparatory School of Medicine will have its first session opened some time in October.

Dreading the danger of conveying patients stricken with small-pox and other contagious fevers to their special hospitals, and that public fever ambulances may possibly, during their passage through crowded city streets, tend to distribute infection, Dr. Gayton, the senior medical officer of the Metropolitan Asylum Board, has so perfected the ambulance van that it can no longer even be suspected as a possible centre to circulate infection. Instead of the open glass and wooden louvre shutters as hitherto, the apertures in Dr. Gayton's safety ambulance consist of a double layer of perforated metal enclosing a sufficient layer of suitable absorbent material saturated with an acknowledged germicide. Fresh air is admitted through modified and improved "Tobin" ventilators, of a horn shape with the larger end opening externally,

whilst inside the van the smaller extremity of this air tube is provided with a disinfecting chamber constructed like those of the other apertures or windows of the van. In these improved safety fever ambulances the Metropolitan Asylum Board now judiciously carry their small-pox convalescents from their Hamstead hospital to their river wharf, whence the patients are transported to the hospital ships lying off Purfleet.

Statistics have often been collected to determine the respective popularity of suicide among men and women, among inhabitants of different countries, and of the different means employed. These, however, have only had reference to actual suicides; and a contribution to the literature of the other side of the question, where intending suicides have failed in their purpose, is supplied by the annual report of the Reformatories and Refuge Union, just issued. From this it appears that of all those cases of attempted self-murder dealt with by the Union during 1883, not a single case of the non-effective use of a revolver occurred, which can only signify that firearms are either more fatal or less popular with the wretched class of beings that would leave the world by crime. In the choice of means other than firearms, a curious discrepancy between the behavior of the sexes appears. In the first place, nearly twice as many men as women attempted and failed to take their own lives; of the women, all had been rescued from drowning. Not a single instance is recorded of an abortive attempt at female suicide by poison or the knife. Only three of the men, on the other hand, attempted to drown themselves, while more than half had taken poison. One would have expected, perhaps, that poison would have been at least as popular with women as with men, and that the rougher sex would have taken more violent means. It is a little surprising, too, that men should fail more often than women in their determination to do away with themselves.

Philip Chelham, the oldest Free-Mason of England, and it is supposed in the world, has just died at Southport. He was in his 97th year, and was initiated a Free-Mason in 1811. He had been Past Master of Lodge 322 since 1841. In 1802 he volunteered as Assistant-Surgeon on board His Majesty's ship "Phœbe, and was at Trafalgar, though not in action.

In reference to the resignation of the medical staff of the Northwest London Hospital, which has excited some comment, at the request of the Committee of Management, Sir T. Spencer Wells, Mr. John Marshall, President of the College of Surgeons, and Mr. Ernest Hart, the editor of the *British Medical Journal*, have consented to act as a Committee of Reference, to whom the rules and regulations of the hospital will be submitted with a view of remodeling them, in conference with a deputation from the Committee of Management, on a basis which may be considered satisfactory and likely to meet the views of the profession, as well as those of the Governors.

At a conference held at the Health Exhibition, Mr. Wm. Earsie read a paper on Cremation. He said the general concensus of opinion was in favor of the introduction of the practice. With regard to the only tangible objection made to cremation, that it might serve as a screen for poisoners, he thought the conditions enforced by the Cremation Society before allowing the use of their crematorium at Woking, would fully meet the case. Dr. Cameron, M.P., after referring to the immense number of persons who are buried without certificates, said that if cremation was legal, Government had no right to interfere in the matter. As to the objection that it would shield crime, he thought that was disposed of by the fact that numbers went to their graves without any certificate of death. Sir Spencer Wells was of opinion that the present style of burying the dead perpetuated disease, and that cremation would be a great boon. Dr. Farquharson, M.P., observed that the growth of opinion upon the subject was very rapid, and as it had been held that cremation was legal, no doubt when the subject again came before Parliament it would meet with more success.

Dr. James Collis Browne died on August 30 at his residence, Mount Albion, St. Lawrence-on-Sea. Dr. Browne was the inventor of chlorodyne. The deceased was about 66 years of age, and was known in the yachting world for his experiments on the construction of yachts on the principle of his well-known Kalafish. G. O. M.

DOMESTIC CORRESPONDENCE.

SOLAR SYSTEM.

Matter, besides possessing its qualities and properties, exists in the solid, liquid, gaseous and fourth or *single atom* states. The sun emits a compound ray of carbon and hydrogen in this state not in direct rays but in the form of a slightly-spiral shaped figure eight, whose outward and downward rays pass between the orbits of Saturn and Uranus onwards and upwards, lapping over and around the planets of Neptune and Uranus, causing the retrograde motion of both planets and satellites when they again dip downwards and homewards toward the sun, thus forming one vast globe of light and heat, the matter of which is not cast into space, but returns, carrying with it the cosmic matter of other worlds as food for the *strata* of *chlorine gas* enveloping the sun, by which it is burned, causing *light*. The hydrogen is the reflecting ray and *reflects* the sun's light in daytime as it does that of the moon, planets and stars at night, as well as the cosmic matter revealed by the spectroscope. The carbon ray is the dynamic, for I hold that *all force*, from the *vis-nervosa* of the most insignificant insect to the most powerful steam engine, is *carbon*, and that this carbon may be either positive or negative potential and when *Kinitic* is *heat*. Thus the sun's rays are not the *direct* luminous particles of Newton or the stagnant etherial fluid of more recent philosophers. Tides are not the result of the sun or moon's *attraction*, but the rays absorbed by the moon relieve the pressure on the earth's surface the width of its track, when, pressure on all other sides being equal, the liquid matter is elevated as seen in new and full moons, the direct and returning rays in decussating

each other leave a triangular space on both the eastern and western horizon, over which the pressure is not equal to the surrounding, and causes the daily tides. It will be seen on a study of these spiral-shaped figure eight rays that at the equinox the direct and returning rays are equal in pressure over an equal area of the planets' surface, and by their spiral curvature give the inclination to the planets' axis, their diurnal revolution and gradual rotation of the four seasons during which the direct are not equal to the return rays, and in this preponderance of force the planets are gradually pushed toward the sun as on the 21st of December, where the rays again battle for the supremacy, when during the preponderance of the direct rays the planets are again repulsed to the other extreme, as on the 21st of June, all of which I hold to be the result of the *force* of the direct and returning rays and *not* the *mythical law of gravitation.*

SIGMA.

BOOK REVIEWS.

THE FORMATION OF POISONS BY MICRO-ORGANISMS. A biological study of the germ theory of disease. By G. V. BLACK, M.D., D.D.S. Published by P. Blackiston, Son & Co., Philadelphia.

This little book of 170 pages requires in this journal only mention of the topics discussed by it, as the article by Dr. Black published in number eleven of vol. iii, has already given the gist of the most original portion, and in regard to it the readers can judge for themselves.

The first half of the book gives a historical review of the germ theory of disease. It describes each important discovery and the methods of research adopted by each investigator. The last portion has been presented to our readers in abstract in the paper read by Dr. Black before the section on Practical Medicine and Materia Medica of the American Medical Association.

In the book before us four chapters or lectures are devoted to the consideration of the formation of poisons by micro-organisms. The first two treat of digestion and molecular changes incident to vitality; the third of the waste products thus developed and of their nature; the fourth of the poisonous nature of the waste products of bacterial growth. A short appendix is devoted to dental caries.

FIFTH ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF ILLINOIS. 1883. Cloth, 633 pages.

This report contains: Abstract of proceedings at the meetings during the year 1882; medical laws and institutions of the United States and Canada; small-pox epidemic, 1880–82; vaccination in Illinois; Proceedings of the Sanitary Council of the Mississippi Valley; mortality statistics, and many other matters collateral to these general topics.

Several minor points are worthy of note. In this report the value of the immigrant inspection service of the National Board of Health is clearly demonstrated. The questions used for the examination of candidates for licenses by the State Board, clearly show the impropriety of such examinations being conducted by other than practical teachers in medical science. In justification of this criticism we quote the following:

What chemical elements are contained in pure grape sugar not found in cane sugar? A catch question and not justifiable in an examination. Give the therapeutic uses and applications of aqua *fluvialis* or *fontana?* These terms are not in general medical use. We will suggest answers to the following questions: What is meant by "a qualified prognosis?" Ans. A confession of ignorance. How would you recognize the cancerous cachexia? Ans. By the diagnosis of cancer in an anæmic patient. When are mammary abscesses salutary? Ans. Never. What are the chief causes of an excessive mortality and their remedies? Ans. War, pestilence and famine. The remedies are chiefly prophylactic—Statesmanship, properly enforced sanitary regulations, and good crops. What precautions—other than for the safety of the subject—would you observe in the exhibition of an anæsthetic, and why? I should place my property in my wife's name to avoid the possibility of a suit for malpractice.

W.

MINUTES OF THE SIXTEENTH ANNUAL SESSION OF THE NEBRASKA STATE MEDICAL SOCIETY, held at Omaha, Nebraska, May 13 and 14, 1884. Cloth, 357 pages.

Judging from the official report of the proceedings this must have been a spirited and interesting meeting.

It is to be regretted by the profession at large that Dr. James Carter's vigorous paper, the report of progress in practical medicine, pathology and special therapeutics, was cut by striking out his remarks on the ethics of the doctors of Omaha, for the free discussion of all questions of ethics is the best mode of maintaining the purity of the profession.

The numerous cases reported and the free expression of opinion on the part of practitioners gives the proceedings their chief value as medical literature.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF THE STATE OF MISSOURI at its Twenty-sixth Annual Session, held at Jefferson City, Mo., May 15, 16 and 17, 1883. Paper, 262 pages.

Among the minutes we observe a resolution setting forth the benefits of a National Board of Health to the States in the valley of the Mississippi, and requesting the representatives in Congress from that State to secure the continuance of said Board.

The essays and discussions occupy over 200 pages of the volume. There are scattered through the whole many interesting papers and medical and surgical facts. We may be pardoned for calling special attention to the following:

The Elastic Ligature, Jequirity Ophthalmia, Glaucoma, Report on a case of Rhinoplasty, Electricity in Skin Diseases, Therapeutics of Ergot, etc., in the Reduction of Spleen and Fibroids, Vaginismus, Volvulus, Injuries of the Head, with Report of Cases.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF TENNESSEE AT ITS FIFTY-FIRST ANNUAL MEETING. Paper, 139 pages.

It is greatly to be hoped that the society will be successful in its attempts to protect the public in that State from the outrages of quacks by appropriate legislation.

MISCELLANEOUS.

NEW INVENTIONS.—A NEW HYPODERMIC CASE.

Dr. J. H. Parkinson thus describes in the *Pacific Medical and Surgical Journal*, what he calls the "Bijou Hypodermic Case," as manufactured to his order by Messrs. Geo. Tiemann & Co., of New York.

The case is of nickel, the metal being of a sufficient thickness to stand a very considerable amount of violence. In shape it follows the rectangular figure, the corners being rounded to prevent its injuring the pocket, or other contents which it may come in contact with. The dimensions are, length, 2¾ inches; breadth, 1⅜ inches; thickness, ⅝ inch. On opening the box, which is fastened by a strong spring catch, nearest the front is a glass silver-mounted syringe of 20 minims capacity, graded on the piston-rod, the button at the end of which is slightly concave for the thumb. A small silver cap slides on the nozzle of the instrument, and limits the evaporation from the piston. Forty-eight hours' disuse will (in California) in the unprotected syringe as a rule, render the most effective piston unfit for service, without a troublesome preliminary soaking. On each side of the syringe held in small brass clips, are the needles, two in number, one inch in length, very finely made, and of steel. These, like the air cap, slide on the nozzle, and being ground to an accurate fit dispense with the troublesome and complicated screw and leather washer arrangement. At the back of the case is the addition for which he claims credit. In place of the small 2 dr. vial, which usually accompanies this pattern, is a small silver box, two inches in length, $^{4}/_{8}$ inch in breadth, $^{7}/_{32}$ inch deep anteriorly, and $^{5}/_{32}$ inch posteriorly, so as to accommodate itself to the rounded edges of its containing case, the lids of each opening in the same direction. The space internally is divided by small transverse partitions into nine compartments of uniform size. In these compartments are the pellets, the number varying with their bulk, and ranging from five to twelve. The names and strength are printed on a small slip of paper attached to the outside of the lid, and correspond to the space immediately beneath. When the compartments have been filled with the discs, so as to leave a clear space ⅛ inch between them and the lid, the vacancy is packed with absorbent cotton to prevent friction and consequent disintegration. In the bottom of the case, immediately in front of the pellet box, rests a small silver tube containing wires for the needles, and above it fits a Fisher's iris forceps, which enables the smallest discs to be readily and easily extracted from their compartments, whilst the round extremity is of service in crushing them to promote their readier solution.

The list of pellets as carried by Dr. Parkinson, comprises ⅛ gr. morph.; ⅙ gr. morph., with $^{1}/_{180}$ atropia; ¼ gr. morphia, with $^{1}/_{150}$ atropia; ⅓ gr. morph., with $^{1}/_{120}$ atropia; ½ gr. morphia, with $^{1}/_{60}$ gr. atropia and $^{1}/_{60}$ gr. strychnia; ⅛ gr. pilocarpine; $^{1}/_{20}$ gr. apomorphia.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM SEPTEMBER 13, 1884, TO SEPTEMBER 19, 1884.

Caldwell, D. G., Major and Surgeon, granted leave of absence for 1 month and 20 days, to commence about Oct. 15, 1884. (S. O. 95, Hdqr's Div. of the Mo, Aug. 16, 1884.)

Cronkhite, Henry M, Captain and Assistant-Surgeon, from Dept. of the Platte to Dept. of the Missouri.

Taylor, Arthur W., First Lieutenant and Assistant-Surgeon, from Dept. of the Missouri to Dept. of the Platte. (Par. 1, S. O. 215, A. G. O., Sept. 13, 1884.)

Macauley, C. N. B., First Lieutenant and Assistant-Surgeon, assigned to duty at Ft. Sisseton, D. T. (S. O. 99, Dept. of Dakota, Sept. 6, 1884.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING SEPTEMBER 20, 1884.

P. A. Surgeon G. E. H. Harmon, Sept. 16, from Navy Yard, Norfolk, to Naval Academy.

P. A. Surgeon W. A. McClurg, Sept. 16, from Naval Academy to Naval Hospital, Philadelphia, Pa.

P. A. Surgeon Philip Leach, Sept. 16, from Hospital, Chelsea, Massachusetts, to the Palos.

Surgeon J. W. Coles, Sept. 16, as member and recorder of Nav. Exam. Board, and to Hospital, Philadelphia.

P. A. Surgeon E. Z. Derr, Sept. 16, to Navy Yard, New York.

Surgeon B. S. Mackie, Sept. 16, from Training ship Jamestown, to member and recorder Nav. Exam. Board.

Med. Inspector D. Knidleberger, Sept. 18, from Hartford, sick.

P. A. Surgeon S. H. Dickson, Sept. 19, permission to leave United States.

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ORIGINAL ARTICLES.

A CONTRIBUTION TO THE RELATIONS OF OVULATION AND MENSTRUATION.

BY A. REEVES JACKSON, A.M., M.D., PROFESSOR OF GYNÆCOLOGY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO, ETC.

Read in the Section on Obstetrics and Diseases of Women, May, 1884.

MR. CHAIRMAN AND GENTLEMEN.—The aim of all investigation should be the attainment of truth. And, in order that the discussion of any scientific question should be profitable, it is essential that the arguments advanced be based upon known facts. Any process of reasoning without such foundation is presumptuous, if not impertinent. In deference to this plain and just principle I shall abstain from making any assertion, or educing any inference not fairly warranted by the observations of trustworthy investigators.

In the year 1673, De Graaf, a Dutch anatomist, described, in connection with the anatomy of the ovaries the bodies which have since borne his name. They were thought to be the ova of mammalia, and this belief obtained for many years. Sir Edward Home noticed the ruptured follicle during menstruation, but attached no importance to the coincidence.

In 1821 Dr. Power clearly enunciated the doctrine of the periodical ripening and rupture of the follicle at the menstrual period; and the discovery by Baer, in 1827, that the follicle was only the enveloping structure of the ovule and not the ovule itself made the rupture an intelligible and significant fact; and this may therefore be regarded as the birth of what is known as the ovulation theory of menstruation.

Négriér, in 1831, and, following him, Gendrin, Paterson, Barry, Raciborski, Bichoff, Pouchet, and others, furnished additional proofs, based upon anatomical observations, tending to show that menstruation was not only simultaneous with, but dependent upon and in consequence of ovulation. The doctrine seemed so consistent and reasonable, and was apparently so well sustained by the evidence adduced that its general acceptance by physiologists is easily understood. Nevertheless, there have always been some who doubted its correctness, and who considered the evidences alluded to as insufficient and inconclusive.

These alleged proofs consist (*a*) of observations made post-mortem upon the bodies of women in whom the date of the last menstrual period was known, and (*b*) of the effects following the artificial removal of the ovaries during life; and it is asserted that these observations justify the following propositions, namely:

1. In the human female, at regular periods of about twenty-eight days, a Graafian follicle is ripened and usually bursts, discharging a matured ovule which passes into the Fallopian tube and is transmitted to the uterus.

2. Coincident with, and dependent upon the maturation and extrusion of the ovule, certain changes occur in the mucous membrane of the uterus which result in a sanguineous discharge from that organ.

3. The removal of the ovaries is necessarily followed by a cessation of menstruation.

Certainly, if the facts which have been observed really warranted these conclusions there could be no ground for discussion. But facts are phenomena, and in order that they may lead to true results they must be accurately observed and fairly interpreted. Further, *all* the facts which bear upon a given subject must be taken into account, otherwise the conclusions obtained will almost certainly be fallacious.

I will endeavor to show that these conditions have not been complied with in the discussion of the subject under consideration, and that, if they were, very different results would be obtained. Indeed, it is easily proven that either ovulation or menstruation may occur independently of the other, and that, hence, there is no necessary connection between the two functions.

(*a*) *Ovulation may occur without accompanying menstruation.*—Ovulation is a function of the ovary, and includes the ripening of a Graafian follicle and the discharge of an ovule. The evidences of the process consist in (1) the presence of an enlarged or ruptured follicle; (2) the presence, in the latter, of a blood-clot or corpus luteum: (3) cicatrices marking the seat of former rupture; (4) the occurrence of conception.

Malpighi and Vallisneri long ago observed that developed Graafian follicles are occasionally found in the fully-grown fœtus. Ritchie[1] also has demonstrated that in the ovaries of new-born infants and children as early as the sixth year may be found highly vascular Graafian follicles; and that, at the age of fourteen and prior to menstruation, they are found as large as

[1] Ovarian Physiology and Pathology. London 1865.

small raisins, filled with their usual transparent granular fluid. These observations have been confirmed by the more recent researches of Grohe, Slavjansky,[1] Sinéty,[2] Haussmann,[3] and others.

Haussmann, whose observations were made upon 84 subjects, asserts that such early development of the follicles as was noticed by Ritchie, takes place in about ten per cent. of all cases.

Of course, ovulation is the necessary condition of impregnation; and it is admitted by all obstetric writers that conception may occur in the absence of menstruation. Our literature contains many instances of girls who have become pregnant prior to the first appearance of the flow; of women who have conceived subsequently to the menopause; and of others in whom pregnancy has occurred during lactation before the reappearance of menstruation.

Rondelet[4] cites an instance of a woman who was delivered twelve times, and Joubert mentions another who bore eighteen children, neither of the women having ever menstruated. Leishman relates the case of a woman who married at 27, and who menstruated the first time after her eighth labor. St. Germain[5] tells of one who married at 20, became pregnant in the early months of her married life a few days after menstruation. She subsequently had eleven children, the last in her forty-fifth year, having never menstruated during the entire period of twenty-five years. At the age of 78 she was in good health. Dr. S. T. Gregory[6] relates the case of a woman whose general health was always good, the mother of seven children, and who had never menstruated, and who had never experienced the usual symptoms preceding or attending menstruation. In a paper read before the New York Journal Association, Dr. Fordyce Barker[7] related several cases of women who had given birth to large families of children, and yet had never menstruated. In one case which occurred in his own practice, a woman who had menstruated irregularly and scantily previous to marriage, ceased entirely afterwards, and yet gave birth to ten children.

Very many other instances of similar character are on record. Indeed, they are so numerous as to scarcely attract attention.

I am aware that the argument based upon this class of facts is not satisfactory, for it may be justly urged that in many of the cases menstruation might have taken place had it not been prevented by conception. But this objection will hardly stand against another class of cases in which follicles have matured and corpora lutea have formed during pregnancy.

Scanzoni admits that the Graafian follicle enlarges and matures during pregnancy, but he has never found one which had burst. Mayrhofer,[8] however, has found during pregnancy the freshy formed corpus luteum, and thinks it may be formed monthly during that condition. Slavjansky[9] has described the state of the ovaries in a case of extra-uterine gestation. The patient was 24 years old, and had had one child previously. She died from rupture of the left Fallopian tube at three and a half months. Menstruation was suppressed during the pregnancy. The right ovary contained a recent true corpus luteum with all the characteristics strongly marked. Near it was a maturing Graafian follicle. In the left ovary was a cavity, the walls of which corresponded to those of a ripe Graafian follicle. A small prominence was noticed near the thinnest portion of the wall. It was removed on the point of a needle, and found to consist of a mass of epithelial cells, in the midst of which was an ovule. Hence, it was clearly not a cystic degeneration, but a ripe Graafian follicle ready to burst.

Sinéty, too, has made two observations which can only be explained on the theory that ovulation and menstruation are independent processes.

The first of these was reported to the Biological Society of Paris, April 25, 1874.[1] The subject was a woman who had died of phthisis, and who had not menstruated for five months. One ovary contained a ruptured Graafian follicle. The second case was reported to the same society in 1877. The observer described the anatomical characters of the uterus and ovaries of a woman who had never menstruated. She died at the age of 38. With the exception of the absence of the flow, she had presented all the features of puberty from the tenth year. The uterus was externally, of normal size, but the cavity was formed almost entirely by that of the neck; the cavity of the body was infantile, as was likewise the mucous membrane. Ovulation, however, had been very active, the ovaries presenting many false corpora lutea.

(*b*) *Menstruation may occur without accompanying ovulation.*—Inasmuch as the menstrual periods occupy from one-sixth to one-fourth of a woman's lifetime for thirty years; and, further, as Graafian follicles are maturing and rupturing, and corpora lutea are forming and disappearing continually, we should expect that a broken follicle or a corpus luteum in some of its stages would frequently be found coincident with menstruation. Indeed, it could not be otherwise. So that persons who are satisfied of the correctness of the ovulation theory because they find such coincidences, have usually no lack of evidence to sustain their belief. Yet, abundant as such evidence unquestionably is, it sometimes fails; for menstruation frequently occurs without any such simultaneous change in the ovary. From many instances of this character which have been recorded, I select a few for your consideration.

Dr. W. W. Gerhard[2] presented to the College of Physicians of Philadelphia the uterus and appendages of a multipara, 25 years old, who died of apoplexy during a menstrual period. Although the woman had been the subject of menorrhagia, an examination of the ovaries failed to show any recent ripening or rupture of a follicle. Dr. Stedman[3] has reported the case of a married woman, 45 years of age, who died of some pulmonary affection, having

[1] Virchow's Archiv. Band iv, Heft IV.
[2] Brown-Sequard's Archiv. de Physiol., No. v.
[3] Centralblatt, No. 32, 1875.
[4] Gardien, Traité d'Accouchements, vol. 1, p. 220.
[5] *L Union Médicale de Canada*, Dec., 1875.
[6] *Amer. Jour. Med. Sciences*, vol. xxv, p. 549.
[7] *Obstet. Jour.*, Great Britain and Ireland, (Amer. Supplement), vol. ii, p. 154.
[8] *Obstet. Jour.*, Great Britain and Ireland, vol. iv, p. 699.
[9] Annales de Gynécologie, Feb. 1878.

[1] *Amer. Jour. Med. Sciences*, vol. 68, p. 240.
[2] *Amer. Jour. Med. Sciences*, vol. xxxvi, p. 410.
[3] *Amer. Jour. Med. Sciences*, vol. xxiv, p. 83.

had no symptoms of uterine disease. Her last confinement occurred at thirty-nine, when she had twins. Menstruation was regular almost to the time of death. On examination not a trace of the left ovary was found, but in its place was a thin and simple serous cyst, nearly two and a half inches in diameter. On the other side there was a collection of cysts forming a mass twice the size of an English walnut, upon the surface of which were spread out the flattened, dense, atrophied remains of the ovary.

On December 2, 1876, M. De Sinéty read before the *Société de Biologie* an account of the autopsy of one of Charcot's cases of hysterical hemianæsthesia, and pain in the situation of the ovary of the same side. The patient had begun to menstruate at 13 years, and had menstruated almost regularly since that time. Histological examination showed that there was not a single Graafian follicle arrived at maturity, nor were there any corpora lutea or cicatrices in either ovary. It was evident that no ovules had been expelled from the ovaries for a considerable time. It was, in fact, a case of menstruation without ovulation.

Some of the reported cases of hernia of the ovaries throw valuable light upon this subject. For example, Dr. Alfred Meadows[1] relates the case of a single woman, 23 years of age, who began to menstruate at 15, and continued to do so at regular intervals, with some pain, down to the age of 20, when, after stooping, a swelling suddenly appeared in the right inguinal region, caused, as was learned subsequently, by the herniated ovary. At the menstrual period following this she suffered violent pain of a character different from any she had previously felt; it preceded the discharge; at the same time the tumor was much increased in size. From that time onward, for three years she suffered in a similar manner, the pain being so acute that at every monthly period she was obliged to lie in bed for a week or more. Sometimes the tumor would swell to the size of "two fists," and be exquisitely tender to the touch. She had no suffering during the inter-menstrual period. The tumor was removed. The upper portion, or pedicle, which went through the abdominal ring, was found distended with fluid. This was punctured, and about an ounce of the contents let out. The pedicle was then tied, and the tumor removed. It measured about two inches in diameter, and proved to be the right ovary. It was found, on section, to have undergone remarkable structural change. "Instead of presenting the usual dense, compact appearance, it contained throughout numerous irregularly-shaped spaces, varying in size from a pin's head to half an inch in diameter, and all were filled with the same kind of fluid as flowed from the pedicle. These cells or cysts appeared to communicate with one another, and the whole organ to be infiltrated, as it were, with the fluid in question. There were no proper Graafian vesicles to be seen." No Graafian follicles, no ovules, no ovulation, to account for the great increase in the size of the ovary preceding and during the catamenial period! What is the fair inference? Is it not that the swelling of the ovary was caused by the pelvic congestion attendant upon the menstrual period?

Dr. Robert Barnes[1] relates a case of a single woman, aged forty-one, who had always enjoyed good health, and in whom the catamenia had occurred punctually, but scantily, and attended by some pain. "She sustained a rupture in the left groin at twenty-four, and has since worn a truss. About three years ago she first observed a second swelling a little below the old rupture. This mass, she asserts, becomes almost twice its usual size at the menstrual periods, and tender and even painful. It continues in this state for a week at least after the disappearance of the catamenia, and then gradually lessens and can be handled without causing pain." April 24, a menstrual period commenced and lasted five days. Another period commenced May 20, and ceased on the 25th. On the 7th of June the tumor was removed by Mr. Pollock. An examination showed that it was an ovary filled with small cysts of varying size, but not a single matured follicle.

In this case, also, we find regularly recurring menstruation with simultaneous swelling and tenderness of the ovary, but without any preceding or accompanying follicular rupture.

I have had three opportunities of examining the ovaries of women who died at or near the menstrual period.

One of these was in the case of a healthy unmarried woman, twenty-eight years of age, who died from an overdose of morphia, taken accidentally. She had menstruated regularly, and a period had ceased four days before death. Both ovaries were normal in structure and size, the right being somewhat larger than the left. It contained several Graafian vesicles scattered throughout the stroma. Two of these were larger than the others, one being about an eighth of an inch in diameter, and the other as large as a small currant. The latter was near the surface and caused a slight projection. The left ovary contained fewer vesicles, but had the indistinct remains of a corpus luteum not less, certainly, than four or five weeks old. A second case was that of a young girl fifteen years old, who died from the effects of a burn. She had commenced menstruating eighteen months before, but the function had been performed regularly only about ten months. A period had ceased twelve days prior to death. Neither ovary contained corpora lutea, nor bore the marks of recent rupture. The largest vesicle, which was about a quarter of an inch in diameter, was found in the left ovary about a sixteenth of an inch from the surface. The third case was also in the person of an unmarried woman, who died of peritonitis three days after an operation for the removal of a cystic kidney. A menstrual period had ceased five days before death. Springing from the right ovary was a thin-walled cyst containing about four ounces of a clear, yellowish, serous fluid. In the left was a ruptured follicle which contained a partially adherent blood-clot as large as a pea, and which seemed five or six days old.

Prof. G. Leopold[2] has recently made a most valu-

[1] *Amer. Jour. Obstetrics*, etc., vol. vi, p. 231.

[1] *Amer. Jour. Obstetrics*, Jan., 1882.
[2] Archiv f. Gynäkologie, Bd. XXI, Heft 3, 1883.

able contribution to this subject, based upon an examination of 32 pairs of ovaries which were removed from patients of whom the date of the last menstruation was known. The post-menstrual period varied from one to thirty-five days. Leopold does not consider that his researches, or any others that have yet been made, are sufficient to settle the points in dispute; but they certainly show that the Graafian follicle may rupture at any time without reference to the menstrual period, and that, consequently, there is no necessary temporal connection between the two processes.

The 32 lithographic figures which accompany the paper, and which I here present for your inspection, seem conclusive upon this point,—at least, so far as their number may warrant any conclusion. To illustrate, in figures 1, 4, 5, 11, 14, 15, 18, 21 and 23, are representations of burst follicles, none of them having been broken for more than one to three days, but their relation to the last known menstruation varied from one day to three weeks, being respectively 1, 5, 12, 15, 16, 20 and 21 days. Likewise, there may be seen delineations of large projecting follicles, just ready to burst through their enveloping structures in figures 1, 2, 6, 9, 12, 14, 17, 18, 20, 21, 24, 26, 28 and 30; and these were removed at periods after menstruation all the way from one to 26 days. Figures 22, 23 and 24 show the conditions of the ovaries 21 days after menstruation. If they be compared with each other it will be seen that they have scarcely any feature in common. In one (fig. 22), there is a large typical corpus luteum; in another (fig. 23), there is a recently-burst follicle; and in the third (fig. 24), there are numerous mature superficial follicles. The ovaries depicted in figures 20 and 21 were removed on the 20th day. In the first there is a mature follicle which is ready to burst; in the second there is a burst follicle precisely like the one seen in fig. 1, removed on the first day, and also a large ripe follicle on the point of bursting. The ovaries represented in figures 31 and 32 were removed 35 days after menstruation. In one (*c*, fig. 31) there is a typical corpus luteum five weeks old, and a recently-ruptured follicle; while in the other (*c*, *l*, fig. 32) there is a corpus luteum ten days old. The ovaries shown in figures 16, 17 and 18 were removed 16 days after a period. In one of them (*c*, fig. 16), there is a typical corpus luteum, probably 12 days old, and two follicles ready to burst; in fig. 17 there are several mature follicles; and in fig. 18 there is a freshly-broken follicle, and another just ready to burst. In short, there is no single condition of the ovary which corresponds even approximately with the menstrual period; and it would be the merest guessing to select any one of the specimens and assign to it the date to which it belonged.

Lawson Tait, in a paper read before the Midland Medical Society, and published in the *Medical Times* for March, 1884, gives the record of 49 cases of operations for removal of both ovaries, and he rests satisfied that the evidence so far has completely destroyed the ovular theory of menstruation. These cases are as follows:

1. Cases, nine in number, where it was evident that menstruation and ovulation were concurrent.

2. Cases of negative proof against the ovulation theory of menstruation, fifteen in number.

3. Cases, twenty-five in number, affording positive evidence against the theory.

(*c*) *The removal of the ovaries does not necessarily determine the cessation of menstruation.*—Many persons, who, recognizing the inevitable logic of facts, are willing to admit that menstruation may occur without coincident ovulation, deny its possibility in the absence of the ovaries. This, which was formerly almost the universal belief, is still the prevalent one. It is based upon the fact that, in most cases in which the ovaries have been removed, women who before menstruated regularly have ceased at once, or very soon, and forever.

After ovariotomy became a frequent operation it was noticed that in many instances the ablated organs were so greatly diseased as to make it incredible that they had continued to perform their normal functions; but, inasmuch as one ovary was frequently left, it was not difficult to suppose that it had been doing, and might continue to do the work of both. By and by, however, as double ovariotomy became more common, it was observed that in very many cases there appeared a subsequent bloody flow from the genital organs, recurring with more or less regularity, and persisting for varying periods from a few months to many years. In some of these the discharge was perfectly regular in point of time, was accompanied by the usual symptoms of the menstrual period, and continued to appear until the approach of the ordinary time of the menopause. At first, instances of this character scarcely attracted attention; then, as their number increased, they aroused curiosity; next, they excited wonder; and, finally, inquiry. At first the discharge was regarded as a mere accidental hæmorrhage, dependent, possibly, upon some uterine disease, and its rhythmical character was either not noticed, or thought to be only a causeless coincidence. But the frequency of the cases demanded more earnest consideration, and at length investigation began concerning their significance.

In a paper which I had the honor to publish in the *American Journal of Obstetrics*, in October, 1876, I mentioned a large number of instances in which menstruation continued after removal of both ovaries. Many others of the same kind have been published since. They are no longer uncommon. I present here a few of the more recent that have come to my knowledge. And I beg to have it observed that I do not include any of those cases, so frequently noticed, in which within a short time after ovariotomy a bloody discharge occurs from the genitals, lasting from a few hours to a few days; or those even in which the flow, regular or irregular, is seen for only two or three months; but only such as from their rhythmical character and persistent recurrence seem to possess greater significance.

In the Transactions of the State Medical Society of Michigan for the year 1870, is published an instance of this kind by Prof. E. W. Jenks. The patient was an unmarried woman, aged 30 years. Both

ovaries were removed, for cystic disease, September 15, 1869, ten days after a menstrual period. Eighteen days subsequent to the operation menstrual molimenal symptoms manifested themselves, and continued two or three days, although no discharge of blood or mucus appeared. Twenty-eight days later the symptoms indicative of the onset of menstruation returned, this time accompanied by a slight discharge of mucus from the vagina. In four weeks more the *molimen* appeared distinctly, and there was a discharge of mucus tinged with blood. After this there was a regular monthly discharge of blood, lasting the average time of the monthly flow; and this had continued down to the date of the report—June 4, 1870,—nine months after the operation.

MM. Verneuil and Terrier[1] record the case of a woman, 36 years of age, who underwent ovariotomy for multilocular cysts. Both ovaries were removed July 6, 1875. On December 25, following, menstruation appeared, was profuse for four days, and lasted six. It appeared again February 20, was very abundant, and lasted ten days. It then recurred every alternate month until the summer of 1876, then it became regular, once a month, lasting from six to eight days.

At a meeting of the *Société de Biologie*, held December 2, 1876, M. de Sinéty reported the case of a patient who had undergone double ovariotomy, and in whom, a few months afterwards, menstruation had recommenced and recurred at regular intervals.

On October 18, 1881, Billroth[2] operated on a woman aged 29, who was married at 18, and had five children without any trouble. The sixth pregnancy ended with the expulsion of a decomposing six months' fœtus. Both ovaries were removed, together with portions of the bladder and ileum. Menstruation returned three months after the operation, and continued to be regular, lasting from three to four days.[3]

Dr. T. A. Emmet reported to the American Gynæcological Society[4] the case of a woman from whom he removed the Fallopian tubes and ovaries at the Woman's Hospital, in New York, eighteen months previously, and who, after a lapse of three months succeeding the operation, had menstruated regularly thirteen times.[5]

In addition to a case reported in the paper referred to, a second one has occurred in my own experience.

Through the courtesy of Dr. Charles H. Venn, of Chicago, I visited Mary S., in January, 1882. She was 21 years of age, unmarried, and had commenced menstruating at 13. On March 12, 1883, I assisted Dr. Venn in performing Battey's operation for intractable dysmenorrhœa. The ovaries seemed in every respect normal. The operation was done twelve days after the cessation of a menstrual period. The next period came duly, but the discharge was scanty and without pain. A second and third period had each a similar history. The fourth, however, was marked by a great increase in the amount of discharge, and a return of the former pain. Since then menstruation has been entirely regular, very profuse, and attended by great pain, which is only alleviated by hypodermic injections of morphia and chloroform inhalations.

The persistence of a periodical hæmorrhagic discharge after removal of the ovaries is no longer denied, although many are unwilling to consider it as menstruation. Its occurrence has been explained on several more or less reasonable hypotheses.

Thus, it has been urged as a possible explanation that some portion of the ovarian tissue may have been left behind, and that this remaining portion has been sufficient to continue the work of maturing and expelling ovules. Surely, the mind which could rest content with such an explanation would be easily satisfied. In refutation of its force it is only necessary to call attention to the obvious anatomical and physiological difficulties involved in the supposition, and to the fact that no such condition has been shown to exist in any of the cases under consideration.

Again, it has been suggested that supernumerary ovaries might be present, and one or more left behind. Since the occasional existence of accessory ovaries has been demonstrated, I am quite willing to admit that the argument has some weight. But this anomalous condition is extremely rare, and like the former, has not been found present in any one of the reported cases of supposed non-ovarian menstruation.

Biegel[1] states that in 350 post-mortem examinations he found accessory ovaries in eight,—two being in new-born infants. They were situated on the boundary line separating the peritonæum from the serous covering of the ovary, and varied in size from a hemp-seed to a cherry. They consisted of normal ovarian tissue, and some of them were sessile and contained Graafian follicles, although most of them were attached by a slender pedicle, and were in every way rudimentary.[2]

But the favorite theory in regard to these cases, is that the organism in the course of years becomes so accustomed to the discharge of blood that this still continues although the ovaries be removed; that, in short, the apparent anomaly is explainable on the doctrine of the influence of habit.

I have elsewhere[3] taken occasion to expose the fallacy of this argument, and need here only call attention to the fact that in many, if not most of the cases in which menstruation has persisted after removal of the ovaries the so-called habit was actually broken up; it was not a continuance, but a recommencement of the function. This was the fact in five out of the six cases to which reference has been made in this paper. In one, menstruation was suspended for six months, in another "a few months," and in three others three months each—intervals sufficiently long to efface the effect of mere habit, and to show that we must seek for some other more potent impelling force to account for the subsequent resumption of functional regularity. What this motive power is we do not yet know.

[1] Annales de Gynécologie, August, 1877.
[2] *Wiener Med. Woch.*, Nos. 2 and 3.
[3] The report of this case was made fifteen months after the operation.
[4] Annual meeting, September, 1883.
[5] In a recent letter Dr. Emmet informs the writer that this patient has menstruated regularly eighteen times.

[1] *Wien. Med. Woch.*, May 26, 1877.
[2] Dr. T. G. Thomas observed one case in which he found a third ovary, having removed two, and allowed it to remain.
[3] Loc. cit., p. 27.

In regard to it I do not desire to offer either opinion or theory. My object has been only to present facts. To my mind, these facts justify at least the following conclusions:

1. Ovulation and menstruation may each occur independently of the other.

2. Ovulation is an irregular but constant function of the ovaries; while menstruation is a rhythmical function of the uterus.

3. Graafian follicles mature and rupture at any time, without any necessary connection with menstruation.

4. Menstruation may persist regularly without interruption, or may temporarily suspend and resume its regularity after the removal of both ovaries.

DISCUSSION.

Dr. Campbell, of Georgia.—Mr. Chairman: You are aware, sir, that the reading of that paper must be very agreeable to myself. You are aware of the subject of my concluding remarks at the meeting of the Gynæcological Society, some months ago, and I am very glad indeed to have such confirmation of the views I presented at that time. I believe, with the distinguished author of that paper, that menstruation and ovulation, although having a relation to each other, so far as cause and effect are concerned, are independent processes inaugurated to act together, but by no means the one dependent on the other. Ordinarily, when we wish to study experimental physiology, we take some lower animal. We have only the analogous results. But in this case, of the human female, we have the experiment performed upon the subject herself; and oöphorectomy has been over and over again performed, and the facts are being rapidly developed that it does not arrest menstruation, that it does not put an end to the uterine processes. In case after case that has come under my observation in which oöphorectomy has been performed, I find that menstruation has fully continued after the removal of the ovary, sometimes more or less disturbed. You will remember in a case mentioned by Dr. Emmett last September, in our discussion, in which both ovaries and Fallopian tubes were removed, the woman had continued to menstruate for thirteen months while under his personal care, and he was informed five months later, when removed, that she was still menstruating.

In a private letter from Dr. Englemann, of Missouri, I received an account of the only case in which he performed double oöphorectomy.

In that case the woman continued to menstruate for three years, without any disturbance of the function whatever. And I do not know why she should not. The egg-making apparatus is there, and has its own supply of blood; the nest-making apparatus is there, and has its own supply of blood; and I see no reason why taking away the egg-making apparatus should interfere with the nest-making apparatus, and menstruation is an accompaniment of nest-making. And I think that the result of experimental physiology, as performed on the subject itself—the woman—by cutting out her ovaries, is establishing the fact that ovulation is not the controlling power; or, in other words, that menstruation is by no means the expression of ovulation.

In another case that has come under my observation both ovaries were removed, and for over eight months since the operation the menstrual flow has returned, with all the neurotic symptoms that attended it before the operation; and not only that, but an excessive hæmorrhage, in which ergot and every hæmostatic means possible have to be used, or she has an alarming hæmorrhage.

According to my view of menstruation, we have studied it too much in regard to the apparatus. We give too much credit to histology. We do not look to what is the philosophy of menstruation. My view of it is, that a woman at the age of puberty has certain endowments, presents certain developments, general developments occur. The internal and external organs of generation are developed, and with the maturity comes an endowment of blood. For what? To support her and make her grow fast and better? Oh, no; some of this blood is used in developing a vesicle into an ovule, and in conception an ovule into an ovum, the ovum into a fœtus, and the fœtus into an infant, which, after being nourished by it for nine months is expelled. I know I have now from twelve to eighteen months of absent menstrual blood to account for. During this time it is utilized in lactation to sustain and nourish the separated, but still dependent pensioner until it can masticate its food—when this waste will begin again in a monthly flow, or, more happily the blood becomes utilized in another fecundation, which of course is the most economical way, if she does not use it this way she must waste it in natural or vicarious menstruation, or suffer ill-health or discomfort.

What is menstruation, then, as we have it? A waste of the blood that is given to woman for procreation.

This is the object of the endowment of blood; and the only woman I knew who made perfect use of her blood was one with whose case I am familiar.

This ideal woman told me, "I was married at 17, and never had menstruation afterwards, although I had twelve children." She used her blood and continued to utilize it, until the close of her menstrual life, and in the end she had not one drop of her sinking fund to set down to profit and loss. [Laughter and applause.] She had none of the disturbances attendant upon the change of life; and she had, at last, a dozen healthy men and women to show as the result of her procreative business transactions. [Laughter.]

This, Mr. Chairman, is my theory and philosophy of menstruation, and also my method of studying the process and its phenomena. [Renewed and prolonged applause.]

Dr. Englemann, of Missouri: Mr. Chairman.—As we have been frequently going too far in one direction, (menstruation and ovulation being considered inseparable and dependent upon each other), I think we are going a little too far in the other direction now. The facts are not quite all in, but this is something which will unquestionably be established by facts. There is no theorizing about it upon isolated cases here and there. There are exceptions to every-

thing. These conditions must be established by facts, as far as the facts go to show.

I have examined a large number of menstruating uteri. The ovule bursts upon the first, second or third day of the menstrual flow,—that is, under normal conditions. We have a monthly congestion in the female sexual organs, and ovulation and menstruation are the evidences of that congestion,—coexistent evidences, not one dependent upon the other. There is a flow of blood to those organs. The ovaries show that congestion in one way,—they ripen the ovule. The uterus shows a congestion, if impregnation does not take place, by a discharge of blood. Both functions are performed—side by side—related—on a par—not one dependent upon the other. The congestion of those organs has its purpose in each.

We have isolated cases. Here and there, indeed, we see something peculiar,—one appearing to show that ovulation is not dependent upon menstruation or menstruation upon ovulation. But, as a rule, if one of these functions is disturbed, the other is likely to be. Sometimes one function is disturbed and the other goes on.

But we do not always know the full facts—the case of double oöphorectomy, to which Dr. Campbell has referred, is still more peculiar than I thought it to be. I removed an ovarian tumor, on one side, as large as an ordinary hat, with a large pedicle. The pedicle was cut short. On the other side was another ovarian tumor which I removed, as large as a child's head, and I have that specimen in alcohol. That patient was restored to the best of health; menstruated for three years regularly, and will be confined in a month! [Laughter.] She has both ovaries removed, sir; the one was completely removed, and the other was as large as a child's head. I have it in alcohol, as I have said, and you can see what is left. A bit of the pedicle was left, of course, but nothing in the shape of healthy ovarian tissue at all. I think it is most important that that exists, in order that it should be examined. Here you have both ovaries removed as well as they can be removed in oöphorectomy; and menstruation ensued. When she first wrote me of her condition I was afraid she was doomed. She had borne children before, she knew what it was, but did not suppose such a thing could happen. But the physician who is attending her tells me that it is a normal pregnancy, and that she has but about a month more before confinement.

The Chairman: Do you think that she might have a third ovary.

Dr. Englemann: I have never seen any such a thing; and in the operation, which was a very difficult one (for I removed about thirteen small cysts, at the same time), I went up the abdominal cavity as far as the liver and found nothing unusual. So that I think this is a most striking example, which tells us that when we think that we have certain oöphorectomy, we are not always sure as in the cases of destroyed ovaries, which have been referred to here.

Dr. Robertson, of South Carolina.—Mr. Chairman: I think this is indeed a remarkable case! A woman conceiving without ovaries! [Laughter.] I think this is the most remarkable case recorded in medical history—that a woman without ovaries has conceived and is about to bring forth! I hope the case will be recorded and reported, and that we shall hereafter hear the final result of a woman without ovaries conceiving and bringing forth! [Renewed laughter.]

Dr. Battey, of Georgia, (being greeted with loud applause)—Mr. Chairman: This question, sir, as is well known, is one that has greatly interested me. I think, sir, the question is one of facts. It is not one that is ever to be settled by theory. It has happened to me, sir, to see more than one hot and furious discussion brought to a very speedy close by a mutual understanding of what the disputants meant by certain terms. When gentlemen misunderstand each other as to the significance of terms, they dispute interminably, and never arrive at a conclusion. Now, I think we have one of those cases here. Insufficient attention has been given to the meaning of the term menstruation. What is the meaning of the term "menstruation?" No definite and satisfactory answer has been made as yet, to my knowledge, to that question. There is, I think, sir, "menstruation" and "pseudo-menstruation," if you will allow those terms. In other words, there is a menstruation which occurs to a married woman of 25, who is putting every second or third year a babe into our world, and then there is a menstruation that occurs to her babe, but four months old. But that is a different menstruation. It has a different purpose. Its results are different. There is a menstruation which occurs to a lady 92 years of age, who changed life at 45 or 48, gone through a long series of quietude and exemption from menstruation, and under the magical touch of electricity from above has again begun to menstruate and menstruated for two years. Is that "menstruation" or "pseudo-menstruation?" Gentlemen, we must understand each other on these points. If the menstruation in the babe at four months old is like the menstruation of the lady of 25 years old, then I will hold the ground with you, that it is a function of little or no significance, and having a cause or no cause as you choose to claim.

Now, what do the facts prove? I cannot give the authorities, but I lay down dogmatically what are the facts! The facts are that the ovaries are not necessary to pseudo-menstruation. The facts are that the Fallopian tubes are not necessary to pseudo-menstruation. The facts are that the uterus is not necessary to pseudo-menstruation. The facts are that the vagina is not necessary to pseudo-menstruation. And the facts are that the vulva is not necessary to pseudo-menstruation. Those are the facts!

Now, then, if I understand my friend, Dr. Campbell, correctly, he laid down the proposition, as he understands it, that cessation of menstruation does not follow upon the extirpation of the ovaries. I go further than my friend, Dr. Campbell. I lay down the fact that sterility does not follow the extirpation of the ovaries.

I had the honor, sir, three years ago, of bringing before the International Medical Congress, at London, a case from my practice, of the extirpation of both ovaries, followed in little less than two years by the birth of a healthy child. That was the first case, I

think, of that kind that has been presented. I thought it was unique, until I came here to-day and find the case that Dr. Englemann has brought before us. I feel comforted, sir, by that case.

But I have a third case, not so strong, perhaps, as these two, but still remarkable. I extirpated an ovarian tumor and dermoid cyst with the left ovary. There was an enlargement at the time of the right ovary, but I did not think it proper to interfere with it. In 12 months' time my patient called my attention to the fact that the right ovary was considerably enlarged. I examined it and found that it was as large as a walnut. I examined her during the succeeding year. It increased in size, and developed beyond the size of a walnut. She begged me to remove it. I said: "No, possibly—who can tell?—possibly that ovary may give you a child yet." It did give her a child, Mr. Chairman. Of course it is true that there was probably some ovarian stroma that was left there.

But, gentlemen, I might take all day up on this subject. I will not consume your valuable time. [Applause.]

Brief remarks were also made by Dr. Healy, of Maryland.

Dr. Jackson, in reply.—Mr. Chairman: The paper really comprehended rather more than was read as you observed. It took up, however, simply the question as regards the temporal relations between ovulation and menstruation. I promised to draw no conclusions that were not clearly justified by facts. These facts are embodied in what some of you have had the opportunity of seeing—in these plates taken from ovaries removed from every woman in whom the date of the last menstrual period was known. There is shown in these plates that there is absolutely no temporal connection at all between the ripening, the bursting of a follicle, with the menstrual flood. These are facts, and they are facts that can be addressed to the eye of any one who will look at them. There are others which, as I say, have been recorded, of which these are simply confirmatory. They have more force, because we are taught more by what we see than by what we hear, and very properly, I think.

Now, with regard to the question of the definition of true and false menstruation. No such distinction has been made by me. I stated in the paper what ovulation was, that it consisted in the ripening and bursting of an ovule. Menstruation I regard as a sanguineous flow, dependent upon the mucous membrane of the uterus, and that may occur absolutely without this ovarian process. Unquestionably that is true; it cannot longer be denied, so that we cannot include in our definition of menstruation, a process dependent upon ovulation, and we cannot declare it a false menstruation because it occurs without the ovaries. To say that it is a false menstruation because a woman is young or old, is simply begging the question.

Dr. Battey.—I would like to ask the gentleman one question. Can this menstruation occur in the absence of the uterus as well as the ovaries?

Dr. Jackson.—I have never known it to do so, but I have seen recorded cases in which there was for a time a sanguineous flow following the operation of removal of both ovaries and of the uterus above the cervix. Of such cases I think there are a number on record.

Now, if we grant that the definition of menstruation is a regularly-occurring flood, discharged from the mucous membrane of the uterus, then it is true menstruation, in that sense, whether the ovaries be present or not. [Applause.]

ON RAILROAD INJURIES OF THE EXTREMITIES OF THE HUMAN BODY, WITH OBSERVATIONS ON THE SITE OF AMPUTATION, AND SUBSEQUENT TREATMENT OF THE STUMP.

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The consideration of severe injuries of the extremities of the human body, the result of railroad accidents, and, indeed, of all crushing blows inflicted by great momentum, is the topic which I have selected for discussion on this occasion.

I shall consider their proximate trauma, also their effects on the heart and great vessels.

For their effects on the nervous system I refer you to the antagonistic works of Erichsen and Page.

Lastly, I shall offer a few observations on the subject of amputations and the after treatment of the stump, also the reports of a few cases bearing on the subject under discussion.

In the good old days of stage-coaching, when the travel, as a rule, was limited to nine inside and three outside including the driver; when the speed of 12 miles an hour was a marvel, an occasional upset seldom resulted in more than a simple fracture, or when compound, scarcely ever comminuted, the offices of the surgeon were rarely called in for any other purpose than to apply splints, to reduce a dislocation, or to administer to sundry contusions.

In this progressive age, the increase of speed and multiplication of travellers are accompanied by increased frequency of accidents, and greater gravity of the traumatisms resulting from derailment, collisions, the coupling of cars, and the running down of unfortunate pedestrians who may not be able to get out of the way.

Owing to the great weight and high rate of speed, injuries inflicted by trains in transit are of the most destructive character, producing comminution of bone and laceration and pulpification of soft parts.

The traumatism is not confined to the immediate part struck, but extends far beyond.

The appearance of the integument is not always a criterion of the condition of the subjacent parts, as there may not be the slightest abrasion or mark of

contusion thereon, yet the underlying muscular and vascular systems may be hopelessly destroyed.

It is a common observation that, concealed under the tegumentary condition above stated, we find rupture of the muscles, the bellies of which are full of ecchymotic patches, and at points so pulpified as to be easily broken down by the fingers.

The inquiry naturally arises as to the "*modus operandi*" by which such results are produced.

It is difficult to imagine a force sufficiently powerful, by direct impact, to produce such a disintegration of the subcutaneous parts, without leaving its impress on the surface, and we are compelled to look elsewhere for the cause.

It is a well recognized fact that a muscle may be ruptured by its own contractile force, especially when taken by surprise, or unprepared for the call made upon it, or when in an unnatural or awkward position when struck.

A case in point has recently come under my observation. I. L. C., aged 54, a strong, heavy, muscular man, while wheeling a bale of hay on a truck, on making a sudden effort for the purpose of ascending an incline, felt, as he supposed, a smart blow on the calf of the left leg, followed by lameness. I saw the case six hours after the occurrence, and found a subcutaneous depression about two inches in extent in its transverse diameter, in the external belly of the gastrocnemius, into which, on pressure, the finger readily sank.

There followed in a few hours extreme ecchymosis of the part.

At the present time (two months after the injury) the lameness has not entirely subsided, and the depression is well marked.

So also the "lawn tennis" leg serves as an illustration of the pathological condition under consideration.

The effect of blows in producing muscular contraction is well illustrated by the tendon patellar reflex contraction of the quadriceps extensor femoris.

A very firm amount of pressure on the ligamentum patellæ, or the tendon immediately above, gradually applied, produces scarcely any action on the part of the extensors of the thigh; but let the same amount of force be applied in a sudden manner, and "up goes your foot."

The condition of ankle clonus is thus described: "If the foot is firmly flexed by pressure on the sole, and the tendo-achillis is tapped briskly, the foot at once undergoes flexion and extension in rapid succession for a considerable number of times. Gowers found the average number of contractions to be a little more than six in a second." "By the aid of the myograph Gowers has ascertained that the commencement of the ankle clonus occurs too soon after the blow upon the tendo-achillis for the impression to travel up to the spinal cord and back to the muscles of the leg. It is therefore concluded that, unlike the knee phenomenon, the foot clonus is produced by the direct stimulation of the muscles both on the front and back of the leg, through suddenly increased tension." Reynolds' System of Medicine, vol. i, p. 987.

In these instances, although the mechanism is different, the effect on the muscular fibres is the same.

A blow upon a muscle held in extreme tension causes violent and repeated contraction, and as in the case where great momentum inflicts the blow, it is fair to assume that rupture of the contracting muscle or its tendon to a greater or less extent may ensue.

In the tendon-reflex and ankle clonus, the joints are left free (except in the latter case when motion is only restricted by manual pressure) to move as the muscles contract; but in the case of railroad injuries, one end of the limb is often held immovable between the rail and car wheel, while the other is fixed by the weight of the body, so that the force of muscular contraction is expended on the muscle itself.

This involuntary contraction in conjunction with the efforts of the victim to free himself, would produce some of the lesions which come under our observation.

Again, the liquids of the human body are confined within strong tegumentary and fascial coverings. Blows of many tons' momentum rupture these envelopes in many places, pulpify and comminute the tissues beneath, and eject the liquids they contain with great force and to great distances. These ejected liquids are sometimes thrown into other tissues, and the blood and lymph are driven back through the larger vessels with the same momentum as that of the blow struck.

The whole vascular system being a series of tubes having a common centre at the heart, this organ on its right side at the time of the blow receives the impulse of venous blood, and should there exist any organic cardiac imperfection a fatal paralysis, commonly known as shock may result. Paralysis from over-distension.

It is fair to assume that the rupture of the vessels of the part when struck a heavy blow, is in reality a fortunate circumstance, so far as the life of the individual is concerned, as in this way a certain portion of the force is expended, for should the whole momentum of the projected current be thrown on the heart, instant death might result.

On the arterial side, the blood flowing toward the part struck is suddenly and forcibly arrested.

This sudden arrest of the circulation is felt by the heart at its systole, producing heart strain, synchronous with the augmented propulsion thither on the venous side.

These forces together produce the results above described.

These results are in proportion to the size of the vessels involved in the injury, or in other words to the proximity to the heart.

After death from direct or primary shock, the heart is found gorged with blood, distended to its utmost capacity, together with general engorgement of the whole venous system.

In view of the tremendous power of the *impinging* force, is not this a reasonable or at least a plausible explanation of the conditions described?

This injected and pulpified condition of the muscular tissue may exist in any part as high up as the point of origin of the muscle.

Even though the soft parts may not present the typical appearance described and seem healthy, yet their vitality may be so far injured at the time as to render their reparation impossible; or the gradual supervention of sub-fascial hæmorrhage higher up in the limb, may by gradually increasing pressure destroy the already weakened circulation of the part.

Sloughing not unfrequently follows when least expected.

The subject of treatment of those cases requiring amputation, has to a certain extent been foreshadowed in the preceding remarks.

In statistics of amputation performed at St. Francis' Hospital, Jersey City, published in *The American Journal of the Medical Sciences*, April, 1881, I use the following language, referring to the damaged condition of the parts above the seat of injury: "a recognition of these facts has led to the practice of giving the seat of injury a '*wide berth*,' especially as relates to the lower extremity." "In those cases where the injury extends above the lower third of the leg, the rule is to amputate above the knee, or in other words, put a joint between the seat of injury and the point of amputation, as under these circumstances alone can we be assured of sound tissues at the point of operation."

It has occurred in several cases which have come under my observation where this rule has not been followed, that the operation, although most skilfully performed, has resulted in sloughing of the stump, involving the necessity of reamputation, resection of the bone or death of the patient.

The sloughing involves oftentimes not only the integuments, but also the connective and muscular tissues.

In some cases it has been observed that the muscles slough to a much greater extent than the skin, giving the stump a cupped appearance, with the bone projecting from the centre; the whole resembling an old-fashioned candlestick.

Since the introduction of anæsthetics, shock from operation has been reduced to a minimum, and therefore the removal of a few more inches of the limb is of very little consequence so far as the safety of the individual is concerned; and the perfection reached in the adaptation of artificial limbs amply compensates for the increased shortening.

All these considerations should outweigh the risks of an amputation in the immediate proximity of the injury.

It matters very little as to the method of amputating; each giving practically equally good results.

The subsequent treatment of the patient and manner of dressing the stump is often the determining cause of the favorable or fatal termination of the case.

It has been my practice for many years, after the vessels have been tied, to sponge the surface of the stump with water a little below the boiling point, not only for the purpose of dislodging any coagula that may have formed in the interstices of the tissues, but to stop further oozing.

The flaps should not be brought together until every particle of oozing has ceased, as it is a recognized fact that any extravasation in the cavity of the stump allowed to remain is one of the most potent factors of *sepsis*, which frequently occurs when this precaution is not observed.

A drainage-tube of sufficient size having been placed in position, the flaps are to be brought together and retained by sutures alone.

A stream of some antiseptic fluid (I have as a rule used Volkmann's solution of thymol) is run through the tube until every trace of color is lost, and the liquid is absolutely clear.

Over all is applied a wad of oakum, which is confined with a roller of sufficient tightness to counteract any spasmodic action of the muscles and give the limb firm support.

The stump is washed out through the drainage-tube twice or thrice a day.

The tube is allowed to remain until all colored discharge has disappeared.

The ends of the tube are left free, in order that the syringing may be done without disturbing the dressing.

The fenestræ in the drainage-tube should be large enough to prevent clogging by the discharges, and the tube itself should be occasionally rotated so as to bring the fenestræ in coaptation with different parts of the wound.

Reliance should not be wholly placed on the tube, as there may be interspaces in the stump which may serve as receptacles for the accumulation of the discharges.

In order to obviate any possibility of such a contingency, it is my practice after washing out the tube, to insert the nozzle of the syringe into the wound alongside of the tube and thoroughly wash out the wound externally to the tube.

One great source of ill success, is using too small a tube. It is better to have one too large than one too small.

In cases where the injury is received above the knee, and the part requires immediate amputation, the stump should invariably be left open, and treated after the method recommended by the late Prof. Jas. R. Wood, of New York.

In open stumps there sometimes exists, especially in muscular subjects, a strong tendency to retraction of the flaps.

This is to be counteracted by the application of extension after Buck's method in cases of fracture of the thigh. The straps are to be applied on the anterior and posterior aspects of the limb, and they are further utilized as granulation progresses, by pinning the two together, thereby approximating the flaps. By this method the dressing may be renewed, and the wound thoroughly cleansed without any inconvenience to the patient.

Injuries of the hand and arm occur most frequently from coupling cars.

These injuries vary in degree from the crushing of a few phalanges, to that of whole upper extremity.

Owing to the greater reparative powers possessed by this part of the economy, we are justified in operating nearer the seat of injury than in the lower extremities. In injuries to the hand, especially, should conservative surgery be carried to its extreme limit.

Injuries to the dorsum of the hand and fingers are less serious than those involving the palm, or palmar aspect of the fingers.

It is my rule, provided the palmar arches are intact, and even one digital artery remains to a finger, to avoid amputation; allowing those hopelessly damaged to slough, and the line of demarcation to form before removing the part affected.

After removing portions manifestly destroyed, such as lifeless parts of fingers attached solely by tendinous and tegumentary connections (and the same remark applies to the toes and foot), the part is immersed in water as hot as can be borne with comfort, and allowed to remain in the bath about half an hour. It is then wrapped in oakum wrung out of warm water, or a hot flaxseed poultice, and the whole enveloped in oil silk.

These baths are repeated at intervals of three hours, until all sloughing ceases and the line of demarcation has formed.

The part is then dressed with bals. fir, and any portion of bone remaining uncovered by soft parts is removed, and the whole allowed to heal by granulation.

By following this plan of treatment, it has been my good fortune to save many a hand and foot which had been condemned as irreparable.

In conclusion, I beg leave to offer the reports of a few cases illustrative of the preceding remarks:

Case I. B. received a c. c. c. fracture of the leg at the junction of the lower and middle thirds, the result of having been run over by a locomotive and train of cars.

Above the immediate seat of injury there was not the slightest mark to indicate that there was any damage to the subcutaneous soft parts.

Notwithstanding the opposition of two other surgeons, I amputated at the lower third of the thigh.

On dissecting the amputated part, the gastrocnemii were found lacerated and pulpified at several points, at which were found extensive extravasations of blood.

Underlying the whole was found a string of coagula extending from the seat of injury to the popliteal space.

The patient made a rapid recovery.

Case II. Pat. Gilligan, aged 27 years, was admitted to St. Francis' Hospital, Jersey City, Sept. 5, 1875, on account of a c. c. c. fracture of the right leg, at the lower portion of the lower third, having been run over by a train of cars. Amputation was performed at the junction of the lower and middle thirds. The soft parts at this point were apparently sound.

In a few days sloughing of the stump set in to a greater extent in the subcutaneous tissues than in the skin.

The stump ultimately assumed the cup-shaped appearance heretofore described.

The patient finally recovered, and was discharged from the hospital May 27, 1876.

Case III. Reported by Dr. F. D. Gray, interne to "The Jersey City Charity Hospital."

"On the morning of August 2, 1883, Mark Selor, æt. 35, laborer, was admitted to Charity Hospital, Jersey City, suffering from the effects of a railroad accident, which occurred several hours previous.

Examination showed that he had sustained a c. c. fracture of the right tibia and fibula about the middle third, also a crushing injury of the right foot. The patient was, however, suffering severely from shock, and the operation (amputation) was postponed till the next day, hoping that his condition would improve. Under the influence of stimulants and nourishment the patient rallied sufficiently to make the operation expedient.

"The point selected for the operation was about two inches below the knee joint. The external wound being quite extensive, and reaching pretty well up toward the knee, it was barely possible to secure sufficient sound tissue to make the flaps (antero-posterior.) In fact, the inner border of the anterior flap was made up in part of the edge of the wound. A drainage-tube was introduced, flaps united throughout with sutures and wrapped in towels wrung out of hot water, then again surrounded by a layer of cotton. The dressing was repeated often enough to keep up the warmth of the stump. Stump washed out three times daily with a 2 per cent. solution of carbolic acid. The patient rallied quite satisfactorily from the immediate effects of the operation, and for eight or ten hours did as well as could be expected. After this he began to grow restless and slightly delirious. On the morning of August 4 (day following the operation) the stump presented a swollen and discolored appearance. Its temperature was lowered, and on pressure it gave the crackling of emphysematous tissue. In short, it had all the appearance of beginning decomposition.

"Stimulants and nourishment together with anodynes were freely administered, but with no effect, as the patient grew rapidly worse, delirium and restlessness increasing, while at the same time he became exceedingly weak. Death occurred about 2 o'clock on the morning of August 5, about 36 hours after the operation.

"Before death the cellular tissue of the stump had become emphysematous from generation of gases, up to the middle of the thigh."

I am indebted to Dr. John D. McGill, surgeon to St. Francis' Hospital, for the reports of the three following cases.

Case I. Patrick Nicholson, æt. 19, brakeman by occupation, was admitted to St. Francis' Hospital, Nov. 9, 1881, having sustained a c. c. fracture of the bones of the foot. The soft parts above the seat of injury and extending as far as the malleoli were more or less contused and lacerated. Above the malleoli the tissues appeared to have escaped serious injury and were apparently healthy.

Amputation was performed at the lower third of the leg, with long anterior and short posterior flaps. The open method in treatment was adopted. The patient rallied well from the operation.

Forty-eight hours after the operation the anterior flap presented a bluish-yellow tinge at its lower border, and some ecchymosis was observed on the leg above the stump. Twenty-four hours later the stump presented a swollen, unhealthy appearance. A well-

defined slough extended about an inch and a half from the lower border of the anterior flap. A solution of permanganate of potash was applied locally.

Quinine and opium internally. Quinine gr. v every three hours.

Poultices were subsequently applied to the stump and within eight days about one-half of the anterior flap sloughed. Two abscesses were opened in the leg above the stump, and several troublesome sinuses slit up.

After this the patient did well, and was discharged cured January 28, 1882.

In this case, although the tissues at the site of operation were apparently healthy at the time of amputation, subsequent events proved that the limit of injury to the soft parts was considerably higher up in the leg.

CASE 2. William Sire, æt. 27 years, railroad employe, July 26, 1882, sustained a compound fracture below the knee joint.

From the seat of injury to the knee joint the integument was intact, but the underlying tissues crepitated upon digital pressure. Amputation being decided upon, in view of the doubtful condition of the tissues below the knee, it was determined to operate at the lower third of the thigh.

An examination of the amputated leg disclosed the following:

Seat of injury about the middle of the leg, c. c. fracture caused by the wheel of a railroad car. Skin above the injury intact, but somewhat contused in places.

Muscles were of a bluish-red color. Small dots of blood were entangled in the meshes of the muscular fibres which had a torn, frayed look. That the nerves, arteries and veins had shared injury with the muscles was plainly evident. This condition of the soft tissues extended from the point of direct injury (some six inches below the knee joint) almost to the knee.

In this case it was apparent that had the operation been performed below the knee, owing to the fact that the soft tissues were injured beyond reparation, a disastrous result would have been certain.

As it was, the patient made a somewhat tedious but satisfactory recovery, and was discharged cured Sept. 8, 1882.

CASE 3. Timothy Daly, æt. 20 years, was admitted to St. Francis' Hospital Nov. 3, 1882, having sustained a c. c. fracture of the leg two or three inches above the ankle. The patient was employed as a brakeman on a coal car, had missed his footing and fallen between the cars. Before he could be extricated two or three cars had passed over his leg completely severing the foot. When admitted Daly was suffering severely from shock, skin pale, cold, and clammy, pulse feeble and rapid, lips bluish in color. Owing to the mangled and lacerated condition of the blood-vessels at the site of injury, there was but a small loss of blood. The condition of the patient was such that all operative interference was negatived until reaction should take place. Under the use of stimulants, with artificial heat applied to the extremities, the patient slowly reacted so as to be in condition to permit amputation about twelve hours after the injury was received.

In this case, as in case 2, owing to the nature of the accident and the evident irreparable injury to the subcutaneous tissues and blood-vessels, it was deemed expedient to operate above the knee. An examination of the amputated leg revealed about the same condition of the muscles and blood-vessels that was noticed in case No. 2, the degree of injuries to the tissues being perhaps a little greater.

Without the occurrence of other incidents worthy of note Daly made a satisfactory recovery, and was discharged cured Jan. 11, 1883.

Many more cases might be quoted did time and space permit.

That the method of treatment advocated has not been barren of results, I report that since August 12, 1879, during my various periods of service at St. Francis' Hospital, I have performed 21 major amputations without a death. All with the exception of two were for c. c. fractures, the result of railroad accidents.

Of these 15 were primary and 6 secondary, which are classified as follows:

Thighs, primary	6,	Secondary 4,	Total.....	10
Leg, primary	3,		Total.....	3
Hip joint,		Secondary 1,	Total.....	1
Shoulder joint, primary	1,		Total.....	1
Arm, primary	2,	Secondary 1,	Total.....	3
Forearm, primary	3,		Total.....	3
				21

In the Jersey City Charity Hospital during the same period I performed 5 major amputations with one death.

All these cases were for c. c. fractures, the result of railroad injuries, viz.:

Thighs, primary	4.
Leg, primary	1.
	5.

The fatal result in one case was due to secondary hæmorrhage, occurring on the fourth day after the operation.

The patient was a broken down tramp, and the hæmorrhage due to sloughing of the stump, opening the femoral artery above the ligature.

Thigh, secondary,	1.
Leg, secondary,	1.
Arm, primary	1.
	3.

This gives a total of 29 cases with one death.

Finally the treatment may be epitomized in one sentence, viz.:

Amputate through sound tissues, and keep the stump clean.

The temperature and pulse at this date, May 4, are as follows:

	Temperature.		Pulse.	
	A. M.	P. M.	A. M.	P. M.
Thigh	98¾	99	76	84
Forearm	98½	98½	72	80

In both cases union by first intention exists to nearly the entire extent of the wounds.

NOTE.—Since this paper was wrtiten I have at the Jersey City Charity Hospital, as the result of railroad accidents, performed two primary amputations, viz: one of the thigh, and one of the forearm. The former on the 27th, and the latter on the 28th ult. Both cases are progressing favorably.

REPORT OF TWO OVARIOTOMIES.

BY W. D. HAMILTON, M.D., COLUMBUS, OHIO.

[Read before the Central Ohio Medical Society, September, 1884.]

CASE I. About the 20th of last February I first saw Mrs. Huldah Hammill, of this city. She gave the following history: Her age was 57. Four years previously she noticed a lump, about as large as a goose-egg, low down in her right side. As it increased in size the uterus sank lower in the pelvis, until finally it lay entirely without her body.

I found the lower extremities and abdominal walls dropsical. The features, which were pinched and anxious, presented the typical "facies ovariana." She suffered mainly from the mechanical inconvenience of carrying a large tumor. The mass, ovoid and symmetrical in shape, gave unequivocal fluctuation. Change of position affected neither its shape nor the line of dulness. Rectal examination revealed a hard mass low down in the pelvis, which was supposed to be made up of small subcysts with thick contents. An operation was advised, and the patient consented.

She was taken to the "Home for the Friendless," where for several days she received a thorough course of baths, catharsis and liquid nourishment. On the morning of March 12 the operation was done, with the assistance of Drs. Lee and Blake. An incision was made five inches in length. A large trocar drew off about twenty-five pounds of colloid fluid. Some of this escaped into the peritoneal cavity, through a ruptured posterior subcyst. Adhesions were found to the omentum and small intestine. The omental adhesions were torn loose and the bleeding points ligated. The intestine was attached to the tumor by a tough band a quarter of an inch long and half an inch thick. One end of this band was strongly incorporated into the wall of the gut; the other was similarly united to the cyst. When torn loose, it carried a small portion of the cyst with it. The adhesive band, still attached to the intestine, was then ligated to check the hæmorrhage. The pedicle, which was long and slender, was tied with the Staffordshire knot, as suggested by Lawson Tait, and divided in the usual manner. The uterus was readily returned to its place in the pelvis. A glass drainage-tube was put into Douglas' cul-de-sac, the cavity washed, and the wound closed with silk. Over this a compress and bandage were applied. The patient rallied from the shock completely, and was very comfortable during the rest of the day. A large amount of serum was discharged through and around the tube over night. The next morning, the 13th, the pulse was 126, the temperature normal; at 6 in the evening, pulse 130, temperature 101⅛; at 10 o'clock, pulse 121, temperature 100¼. At that time she felt so well that she asked permission to get up and walk. She had taken nourishment regularly with relish. On the morning of the next day (the 14th) she complained of pain. There was considerable tympanites. Her suffering increased until the morning of the 15th, when she died, sixty hours after the operation. The tympanitic distension was enormous. A rectal tube had no effect in relieving this obstinate symptom. Four hourly doses of epsom salts proved inert. The bowel seemed to be paralyzed. Dr. Blake, who made the post-mortem, says that there were indications of some peritonitis; that the pedicle was all right; that where the intestinal adhesion occurred the gut was thickened and sausage-like for two and a half inches.

I suppose that peristalsis had been arrested by the ligature of the intestinal adhesion. There was probably the condition of things described as "hernia littrica," in which a portion of the wall of an intestine becoming constricted, symptoms of obstruction appear. If instead of *ligating*, the part of the gut attached to the tumor had been excised, and its edges sewed together with catgut, her chances of recovery would have been better. It was the hernia that caused the tympanites; the tympanites in turn produced death by exhaustion. The temperature never exceeded 101½. The facts of interest were:—the extreme uterine prolapsus, which completely obliterated the vagina; the hernia, and the great tympanitic distension which it occasioned. The tumor weighed thirty-two pounds. The patient was confirmed in the opium habit.

CASE II. Miss Mary N——, of Newark, Ohio, unmarried, age 32, was well until November, 1883, when from exposure, the menses were interrupted. She was confined to bed a few days with pain. There was some flatulent distension of the bowels. Later, a small, movable lump, as large as a hen's egg, was noticed in the region of the right ovary.

Menstruation was regular, lasting two days instead of a week as before, and with a diminution of discharge while it continued. She came to the city last May to learn whether she had a tumor. She was told that she had, and an operation was advised. Early in July, just after the menses, she entered the "Home." The usual preparatory treatment was enforced for two days. On the tenth of July the operation was done in a cottage built for the purpose, Dr. J. W. Hamilton, Dr. Blake and Mr. C. S. Hamilton acting as assistants.

A cut, 2¾ inches long, having been made, a multilocular cyst was exposed, which was found to be free from adhesions. The pedicle was slender and of good length, so that it was easily treated. The cavity was carefully cleansed by sponging, and the wound closed by Hunter's method. A single silver wire suture was passed through all the tissues in the middle of the wound.

Catgut continuous stitches closed the peritonæum and muscular layers, while the superficial structures were supported by silk. Thus the cavity was practically sealed. Antiseptic dressings were applied and remained unchanged for a week. These were such as are now used at the Woman's Hospital in New York.

Iodoform was dusted over the wound, then iodoform gauze, bichloride gauze, absorbent cotton, strips of adhesive plaster, rubber tissue and an abdominal bandage were neatly applied. When upon the eighth day, the dressings were removed, it was found that primary union had occurred. There was a slight trace of pus about the points of insertion of the silk. There was no odor whatever from the wound.

With the exception of a few days' nausea, resulting from the use of morphine, convalescence was uniformly satisfactory. The temperature at no time rose above 100¼, nor did the pulse exceed 102. The tumor weighed 7½ pounds. The patient returned to her home about the fortieth day, and continues in perfect health. Success in this case was due largely to the wholesome surroundings and good discipline; she occupied a new cottage, destitute of superfluous furniture, and built upon land that had been drained for years. The air circulated freely beneath it and through it. Absolute quiet was enjoined, and all visitors excluded. Again, the method of closing the wound, which was rendered thoroughly aseptic by appropriate dressings, undoubtedly contributed to the recovery of the patient.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

A TEST FOR THE PURITY OF IODOFORM.—Dr. Bouma, of Leyden, is of the opinion that the symptoms of iodoform poisoning are due to the presence of impurities in the drug used, and in the *Centralbl. f. Chir.* (Glasgow *Med. Jour.*) brings forward striking facts from the practice of several surgeons in proof of this. He holds that no iodoform should be used which has not been tested for impurities, and states that he has not yet seen unfavorable symptoms arise in a case where this rule has been adhered to. The most reliable test is a modification by H. Azema, apothecary to the Leyden Hospital, of one given by most authorities, and consists in shaking up the iodoform with distilled water, filtering, adding to the filtrate an alcoholic solution of nitrate of silver, and allowing this to stand for twenty-four hours. At the end of this time a slight gray deposit will usually be found at the bottom of the test tube; but anything approaching to a black precipitate (reduced silver) indicates that the iodoform is not pure enough to be used.

Dr. Bouma believes, however, that iodoform which has been kept for some time exposed to light and air may cause evil effects, even though this test fails to detect impurities.

MEDICINE.

PLETISMOGRAPHIC EXPERIMENTS ON FEVER AND ON KAIRINE.—Dr. J. B. Queirolo (*Archives Italiennes de Biologie*) in giving the results of his experiments, refers to the existing views as to the essence of the febrile process. We have, among others, the idea that an increase in the production of heat is due to an increase in organic combustion, that it is due to a diminution in the dispersion of the caloric which proceeds from the body; that it is due to extraordinary biochemical processes; and that there is a great difference in the febrile processes according to their nature.

It is generally recognized that the change in the faculty of dispersing caloric, which the skin has, is of the greatest importance in the production of fever: this has acquired a greater importance to-day since the demonstration of the fact that the retention of heat may of itself cause an increase of temperature, and that in many cases of fever the quantity of heat retained represents the whole of the increase of temperature.

The dispersion of caloric takes place, as is known, through the intervention of the cutaneous circulation; it is then submitted to the influence of the oscillations of this circulation, which are themselves influenced by the functional condition of the vessels. An exact knowledge of the modifications of the peripheral vessels in fever is therefore of great importance. In order to obtain with exactness the oscillations of the cutaneous blood-vessels in fever, Dr. Queirolo has made a series of plétismographic observations in febrile cases. At the same time he studied the modifications produced in the calibre of the cutaneous vessels by kairine, administered in febrile cases. His observations were extended to individuals in a state of health and to those suffering from fever from a variety of causes, such as miasmatic fever, croupal pneumonia, typhoid fever, etc.

The plétismograph was applied to the forearm simultaneously with the thermometer in the axilla and without interruption for a variable length of time, according to the nature of the case, from 4 to 8 hours. All causes which might interfere with the results of the experiment were carefully removed, and the following conclusions were deduced:

As to fever, 1. With the elevation of the febrile temperature there is a constriction of the peripheral vessels.

2. This constriction precedes in time the initial elevation, and the succeeding elevations are themselves preceded by a constriction of the vessels.

3. This constriction is the greater, as the thermic elevation is greater and more rapid.

4. With the decline of the fever there is a dilatation of the peripheral vessels.

5. The dilatation precedes for an appreciable time the decline of the fever.

6. When the decline of the fever is checked the dilatation of the vessels is checked also.

7. These facts are demonstrable in the fever produced by different processes.

As to kairine, 1. Kairine produces a remarkable dilatation of the peripheral vessels in individuals free from fever.

2. In febrile cases kairine lowers the temperature and dilates the vessels.

3. The dilatation of the vessels precedes for some time the lowering of the temperature.

4. When the action of kairine is finished, the fever, in becoming again elevated, is accompanied by a constriction of the vessels.

5. This constriction precedes for some time the thermic elevation.

It is probable that the mechanism by which kairine produces the decline of fever and apyrexia, is, at least in part, the same with that which produces the spontaneous decline of fever and apyrexia.

The mode by which kairine acts upon the cutaneous vessels of individuals in a state of health and in a febrile condition has without doubt a great importance in the genesis of fever.

Treatment of Intestinal Obstruction by Electricity.—Bloch, in *Vratch* (*Jour. de Med. de Paris*), gives the case of a patient, 24 years of age, who had not had an operation from the bowels for eight days, and presented an enormous enlargement of the abdomen, with vomiting and hiccough. Purgatives and injections were used to no purpose, when electricity was tried by introducing one pole high up in the rectum, and applying the other pole alternately to different parts of the abdomen. Each application was kept up for from ten to twenty minutes; they were repeated ten times, four times at intervals of about three hours during the first day of treatment, and twice during the second day. The hiccough disappeared after the first application; the patient had a stool after the fourth application. Professor V. A. Manassein has frequently used this method with success for a number of years, in cases of habitual constipation resulting from atony of the abdominal walls and muscular coats of the intestine.

Application of Electricity to Affections of the Stomach.—Dr. Apostoli communicated to the Congress at Copenhagen (*Revue Medicale*) his experience with the continued and constant current, applied to the pneumogastric, upon the stomach, to relieve and cure certain nervous affections manifestly allied to hysteria, such as epigastralgia, gastralgia and vomiting. For some time past he has extended his observations to the gastric troubles of pregnancy and of phthisis. All the dyspepsias and all the reflex or purely nervous vomitings seem to him to be controlled by electricity. He believes, moreover, that this remedy is sufficient to render great benefit in other gastric disorders associated with simple (non-cancerous) affections of the stomach. To make its application the most useful, he lays down the following conditions:

1. He advises a simultaneous action on the two pneumogastrics by a double or bi-polar application, which method consists in placing two electrodes of equal size and of small surface at the interior angle of the clavicle, at a point as near as possible to the trunk of the vagus nerve. Each of the poles should stimulate a pneumogastric (the one positively and the other negatively), so that the action of both shall be restricted to a localized surface and prevent a diffusion of the current.

2. The current must be as constant as possible, and all interruptions avoided during its application.

3. The electric intensity must be proportioned to the receptivity of the subject and to the resistance of the affection to be overcome, the medium dose varying from 5 to 10 and if necessary 15 milliampères, with a facility for increasing or diminishing progressively, according to the indications furnished by the patient.

4. The duration of the application should be, like the intensity, proportioned to the disease attacked, and the application should not cease until some effect is produced; it should be prolonged until the patient declares that he is better, and not be suspended until a calmative effect is established.

5. Galvanization having rather more of a curative than a preventative action, it will be preferable to make the application during digestion, to combat either dyspepsia or vomiting; therefore the patient is made to eat or drink previous to the application, and the current possesses the property of causing digestion or of arresting impending vomiting.

6. The applications in the beginning should be as frequent as possible, and all digestion should be aided and completed by the galvanization; later, the intervals can be increased in accordance with the amelioration.

7. Every application, if properly made, should be well tolerated and without any consecutive eschar; in order to prevent too much pain and all danger of cauterization, the tamporis should be carefully covered with very soft chamois skin, under which should be placed one or two supplementary layers of moist agaric, to concentrate to it a part of the galvano-caustic action. Any battery will answer, provided that it is furnished with a collector that will admit of a grouping two by two, or better one by one. A galvanometer of intensity divided into milliampères must of necessity be inserted into the circuit.

8. A comparative chemical study of the two processes of galvanization (mono-polar or bi-polar) of the pneumogastric, gives the preference to the latter. The unanimous opinion of all the patients who have been called upon to judge between their relative values, has been that the simultaneous galvanization of the two vagi nerves in the neck (bi-polar) is the most rapidly active and efficacious.

9. In conclusion, the continuous galvanic current, well regulated, and localized, is the medicine for dyspepsia, gastralgia or vomiting. If these symptoms be purely nervous or reflex it exercises an immediate and sovereign action upon them; in all other cases, without supplanting classic therapeutics, it is destined to serve as an active auxiliary.

On the Dilatation of the Stomach in Infants.—Dr. J. Comby (*Archives Générales de Médicine*) calls attention to this affection in the following manner:

The dilatation of the stomach, so well studied in the adult, particularly since the washing out of the stomach has come into common use, has been completely neglected, not to say denied, in infants.

Nevertheless, in children more frequently than in adults, the alimentary canal is the source of numerous disorders; it is the axis about which gravitates all the pathology of the new-born child, if we except congenital and hereditary diseases.

The most notable fact accompanying his observations, is that the dilatation of the stomach in infants is habitually associated with rachitis.

This association is not fortuitous, there is between the two affections a relation of cause and effect; digestive troubles precede and predispose to rachitis.

The onset of the disease is insidious and its symptoms are those of a chronic disease.

The physical signs consist in an exaggerated development of the abdomen, of tympanism and of succussion.

The functional symptoms exhibit themselves sometimes in the digestive organs (dyspepsia), sometimes in the nervous system, (convulsions, insomnia), sometimes in the skin (eruptions, urticaria), and sometimes in bronchitis.

The prognosis is serious, because the dilatation may extend into the second stage of childhood, and even to adult life, as shown by several cases.

The unique cause of dilatation of the stomach in infants is bad alimentation; infants that are bottle-fed, that are given solid food prematurely, or that are weaned abruptly, are the ones who present this condition of dilatation of the stomach.

Nevertheless, it has been noted also in infants nursed at the breast, who suckle too freely or too often.

The prophylaxis consists in nourishment by the female breast as far as possible, and the restriction of the amount taken to within reasonable limits.

It is necessary to abolish the bottle, and to deny all feculent and other indigestible substances.

It is necessary to delay the period of weaning and gradually supplement the breast milk by an appropriate diet.

The dilatation once established, it is treated by diet; milk for the new-born; dry food for older children.

Frequently it is necessary to have recourse to washing out the stomach.

A Case of Chylous Deposit in the Abdomen.—Dr. Francis Nickerson, of Lowell, Mass., communicates a curious case of this character to the Massachusetts Medical Society (Medical Communications). The patient was 55 years of age, deaf and dumb, a carpenter or cabinet-maker. His father died of consumption. Height five feet three inches; weight 105 pounds. Fairly healthy in appearance, carriage erect and firm, movements quick and nervous. Figure not muscular, well-formed, with a rather full abdomen. Complexion light, hair white since 17 years of age; near-sighted; one testicle. General health good. On Jan. 15, 1877, was obliged to give up work and go to bed on account of a sudden attack of pain shooting from the lower part of his back directly forward through his abdomen, and accompanied by vomiting. On medical examination a tumor simulating a distended bladder was found. The catheter drew off only a few drops of limpid urine. Aspiration was then resorted to, which resulted in the extraction of about two quarts of milky fluid, with entire relief to the patient. After the aspiration the tumor collapsed to a level with the surface of the abdomen, and in a day or two the patient was about his work, apparently as well as ever. This experience was repeated March 21, Oct. 3, 1877, and July 28, 1878, except that every recurrence of the tumor was preceded by an exacerbation of pain lasting for about three days, while the quantity of fluid diminished so that at the last aspiration scarcely twenty ounces were withdrawn. Some months after this the patient noticed a partial refilling of the tumor, and a subsequent retrocession thereof. The aggregate amount of fluid aspirated was about five quarts. After the first aspiration up to a year and a half ago he was subject to a dull ache in the lower part of the back, which was easily converted into a severe pain, shooting forward to the site of the tumor above described, by long walks or riding. This pain was also brought on when, having a desire to go to stool, he did not satisfy that desire at once. He had at times, also, some pain in the act of micturition. During the period just mentioned vomiting occurred at various intervals. The matter vomited consisted in the main of the same milky-looking fluid which was taken from the abdomen. Has an aversion to milk and dislikes fat. The pain and vomiting had been growing less marked up to a year ago last March (this paper was read June 11, 1884), when his last attack of vomiting took place while he was at work. This attack was accompanied by a loose discharge from the bowels, in which, as well as in the vomitus, the milky fluid, as he says, reappeared. Ever since this time he has been very well in every way.

A specimen of the fluid withdrawn by the first aspiration was examined by Dr. Nickerson a few hours after its extraction. Its general appearance was that of milk. After standing a few hours it exhibited a soft and generally diffused coagulum. After remaining a week at a temperature ranging from 60° to 68° F. there were no signs of decomposition. Odorless; mawkish taste; reaction alkaline; sp. gr. 1018. Ether extracted from it largely a clear, yellow fluid, in which, on the addition of nitric acid, an albuminoid precipitate was thrown down. Under the microscope were seen large quantities of molecular granules, fat globules, occasional crystals of cholesterine and granular corpuscles of different sizes, in some of which nuclei were revealed on the addition of acetic acid.

An examination by Prof. Edes, of Boston, confirmed the foregoing, with the addition that the other extract not only precipitated with nitric acid, but also, after being boiled with an alkali, precipitated with acetic acid, which would assimilate it more closely to caseine. No trace of urea or anything like urinary pigment.

In his search for precedents to the foregoing case, the writer refers mainly to Prof. Busey's published works bearing upon this subject, as being the most complete and satisfactory, but does not find analogous cases in them. He finds three cases in an essay on dropsy by Donald Monroe, Lond., 1865; a case in Percival's essays medical, vol. 1, Lond., 1788; a case by Quincke, Deutsches Archiv für Klin. Med., vol. 16, p. 121; a case reported in this journal (Jour. Am. Med. Ass'n, vol. 1, p. 120), as taken from the *Gaz. Med.* de Strassbourg; and a case by Dr. Mastin, *Amer. Med. Weekly*, Louisville, Ky.—all of which suggest the idea that the fluid obtained from this patient was chyle from ruptured lacteals, and that this rupture may have been due to a strain in the abdominal region, possibly on vessels already distended. In only two instances does he find men-

tion made of the aseptic character of the chylous fluid, namely: Quincke's case, in which the fluid extracted by ether remained fourteen days without any change in looks or smell, and Dr. Weaver's case, *Med., Surg. and Pharm. Repository*, Aug., 1814, in which the milky fluid was kept for several weeks without any appearance of decomposition.

The symptom of chylous vomiting finds a single precedent, *New England Jour. Med. and Surg.*, vol. 12, p. 4. As to the symptom of chylous discharge from the bowels, there is only the testimony of the patient himself.

OBSTETRICS AND GYNÆCOLOGY.

A New Treatment of Perimetritis by Electricity.—Dr. G. Apostoli (*Journal des Connaissances Medicale*) has used this method for the past two years to the exclusion of all other modes of treatment, in a number of cases which have all been benefited to a satisfactory, rapid and permanent cure.

The inflammation of the peri-uterine tissue, designated as perimetritis, or pelvic cellulitis, is very common and one of the most difficult to relieve satisfactorily. Electricity methodically applied gives great relief, either at its commencement in the acute form, to prevent suppuration, relieve pain and abort a commencing phlegmasia; or in its chronic form, to accelerate convalescence and hasten the resorption of an exudation. It can be used either by means of the induced or faradic, and galvanic or continued currents.

The faradic or induced current can be applied by two methods. The first is the old one of placing one pole in the uterine cavity and closing the circuit by placing the other pole on the abdomen above the pubis. The second method is that of placing both poles in the uterus by means of a sound. This latter has the advantage of being more readily applied, less painful, and more active, localizing the action of the current to the uterus, and allowing of a greater degree of intensity to the current. Between the electrical treatment of metritis and perimetritis a distinction should be made. In metritis the faradic current should come from a bobbin provided with a short, thick wire, from which the intensity is as strong as possible and continued from three to five minutes. In perimetritis on the contrary the bobbin should have a long and fine wire, to produce a slight stimulation which should be progressive and prolonged for some time. The rules laid down to aid in the application of this treatment are as follows:

1. Introduce the sound into the uterus as gently as possible, arresting it with the slightest obstruction.

2. The operation should never be painful, the patient should not feel the sound at all, and the current of electricity but very little.

3. In those cases where it is impracticable to introduce the sound into the uterus, there may be substituted for the double uterine faradization, a double vaginal faradization, by electrizing the vagina, one pole being upon the neck of the uterus and the other upon the wall of the vagina.

4. The current should be used at first with but slight intensity,—the writer uses a battery constructed by Gaiffe with two Lèclanche elements.

5. The application should be somewhat extended in time, lasting from five to thirty minutes, generally about 10 to 15, or until the patient declares of her own accord that she feels better.

6. Each application should produce its own benefit immediately; there should be a sensible improvement from the beginning, a greater facility in walking, a diminution of pain, but this relief will not be durable until after several applications.

7. This treatment is indicated even in the acute forms, where the affection can be aborted, if suppuration has not begun, and even then will diminish it considerably.

8. In the subacute and chronic forms it is not necessary to be so careful about regulating the strength of the current, and the intensity can be increased to a degree which would be dangerous in the acute form.

9. It is the simple chronic form where there is neither fever nor painful reaction, that the faradic current of tension can be combined advantageously with the current of quantity, applied for a short period of time to stimulate more briskly the muscular contractility, to increase the circulation, and to produce, as Tripier puts it, a true interstitial massage, to aid in a more active reabsorption of the exudations.

(*b*) The continued current, applied as an intra-uterine chemical galvanocaustic, may, in the subacute or chronic state, never in the acute, serve as a useful auxilliary to the faradization. It must always be used in small doses, 20 to 40 milliampères, and of short duration, lasting from three to five minutes, it must never be painful, be well supported, and stopped if the patient complains of it.

Electricity in Labor.—Dr. Kilner read a paper before the London Obstetrical Society on the use of induced currents during labor. The effect produced by the current consisted in a diminution of pain, tended to diminish the fatigue, and to prevent post-partum hæmorrhage, render the pulse more regular, increase the frequency and force of uterine contractions, and prevent vomiting. But it did not modify the pain resulting from constricted vulvæ, or that which came from the introduction of an instrument in instrumental delivery. Out of 300 cases, Dr. Kilner had only two of post-partum hæmorrhage. Moreover, the current did not bring on contractions in cases where there was urgent need of them.

When the induction current was used for an hour to an hour and a half, its sedative action was felt, and it did not increase the contractions. In several cases it produced violent and almost continuous contractions. In one case the contraction continued for 15 minutes.

To diminish pain, the induction current is preferable to anæsthetics, as its action can be controlled at will, and it does not cause vomiting. Dr. Kilner has never observed uterine rupture by the contractions, so frequently prolonged and produced by the current.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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BACTERIA AS THE CAUSE OF SUPPURATION.—The latest report to the Scientific Grants Committee of the British Medical Association has been made by W. Watson Cheyne on Micrococci in Relation to Wounds, Abscesses and Septic Processes.[1] It is of interest, as although the experiments described were made to test the correctness of the views advanced by Dr. Ogston in regard to the same subject some time ago, they do not agree with his conclusions. Dr. Ogston has affirmed that micrococci are present in all acute abscesses, indeed wherever suppuration is present or imminent except when it is caused by burns or blisters. He also believes that the common micrococci that exist in the intestines are one and the same with the virulent forms that excite inflammation, but as they do not readily grow in oxygen and lose their virulence when grown in it, they do not always excite morbid action. If, however, they are grown in eggs without oxygen they regain their toxic powers. The same micrococci can, under certain circumstances produce septic intoxication, septicæmia, pyæmia, erysipelas, etc.

Whether or not the micrococci found in abscesses and wounds can thus be rendered harmless by the access of oxygen to them is a matter of much interest and importance.

Some years ago Mr. Cheyne published the result of some experiments which he then made in order to ascertain whether micrococci are present in all acute abscesses. He made his tests by cultivating or attempting to cultivate them in meat infusions. He obtained micrococci in only seven out of thirty-two cases tested. His lack of success he seems now willing to assign to the imperfection of his method and to the lack of the methods of staining since pointed out by Koch.

In the present report he describes his more recent experiments.

They were made, however, with infusions, and before the method of cultivation on solid substances had come into use. In regard to the use of infusions of various kinds as media, Mr. Cheyne makes some very just remarks, which it may be worth while to quote: "My own experience with fluids leads me to think that the risk of contamination in these experiments has been much exaggerated since the introduction of solid cultivation materials, and that there is too great a tendency to underrate and reckon as worthless researches in which fluids alone are employed. No doubt researches with fluid media are much more difficult and laborious than with solid, but with care and judgment excellent work has been and can be done in this way."

The first series of experiments were made with micrococci from an acute abscess of the groin. Streptococci (or chains) were found in the pus, but they did not grow in meat infusion. Two days later micrococci were found, but no chains. This time meat infusion was successfully inoculated. The resulting micrococci were cultivated through several generations, and fluid containing them was injected into rabbits in various parts of the body. Nineteen experiments were made; in fourteen there was no effect produced by the injection; in three there was slight swelling and redness, which passed off; and in two there was found a slight amount of cheesy inflammatory exudate, containing micrococci. These rabbits died of an epidemic disease which was prevalent at the time.

Seven eggs were inoculated with the same infusions, following as nearly as possible the method of Dr. Ogston. In only one of these did the micrococci grow. These were injected into two parts of an animal, without producing any effect.

A second series of experiments was interrupted by the epidemic among the rabbits. The purulent matter was obtained from sinuses which had been scraped and washed out with zinc chloride, after an amputation for carious disease of the ankle. Micrococci were found and cultivated in infusions, which were injected into rabbits without effect. Eggs were also inoculated, but micrococci developed in only one of five trials. They proved innocuous on injection in animals.

[1] *British Medical Journal*, Sept. 20, 1884.

A third set of experiments was made with micrococci obtained from a wound made in an excision of the ankle joint which was treated aseptically and followed an aseptic course. They grew well in meat infusions, but produced no ill effects when injected into animals. They developed better in eggs than had the micrococci in former experiments. Six out of eight eggs were affected. When the micrococci of the eggs were injected into rabbits no injurious effect was noticed. In four cases slight redness followed, but quickly passed off.

Several points of difference are noticed between these experiments and the conclusions arrived at by Dr. Ogston. In the first place, micrococci taken from wounds and abscess proved harmless to animals, whether first grown in infusions or eggs; and therefore cannot be the cause universally of suppuration, as Dr. Ogston asserts.

It appears, secondly, that the growth in eggs away from the air does not contribute to their virulence, nor do they grow as well there as in infusions. Indeed, Mr. Cheyne found that undiluted egg albumen is not a good nidus for the development of micrococci, whether oxygen was admitted to them or not. For when he inoculated eggs that were broken and the albumen exposed to the air, with proper precautions to obtain a pure cultivation if any, he did not succeed in propagating the micrococci.

These experiments we quote more to point a lesson of conservatism than for any other purpose. It is common to-day for many physicians to conclude as soon as bacteria are discovered in connection with a morbid process, that they are its cause. Such a conclusion should be adopted only after most careful experimentation by different persons, only when by repeated trials a disease is shown to occur uniformly after inoculation with bacteria. Mr. Cheyne's experiments may also be regarded as not settling the question both because not sufficiently numerous and on account of the methods of cultivation used, which may be called in question by some, though probably they are as accurate as the dry method. The uniformity of Mr. Cheyne's results makes his conclusions most probable, and at least, throws the question fully open as to the uniform generation of suppuration by bacteria.

Medical Societies and Their Methods of Work.—There are three legitimate and important objects to be accomplished by the organization and maintenance of medical societies, namely, the mutual interchange of views and facts of clinical experience by which the observations of each become more nearly the common property of the whole; the planning and execution of special investigations for the development of new facts, and the solving of problems requiring the coöperation of several observers working to the same end; and the cultivation of social intercourse, personal friendships, and the establishment of union and harmony among all those pursuing the same calling.

The first and last of these objects have hitherto chiefly occupied the attention of our numerous society organizations, while the second has attracted but little attention, although of more importance for the promotion of scientific knowledge than both the others. And even in the accomplishment of the first, the time is so far occupied by the reading of papers of which the members have little or no notice beforehand, and consequently can not be well prepared for discussing, that the real interchange of views and the eliciting of facts of individual experience are far more limited than is desirable.

But the time has come when much more of the time of all our medical societies, whether local, State or national; whether general or limited to some specialty, should be spent in devising well considered lines of investigation, directly calculated, on the one hand to induce a more general practice of recording facts and cases by all practitioners, and on the other, to institute original experimental investigation directly calculated to develop such facts as would reliably advance our knowledge in some department of the wide field of medical science and art. Some beginnings have been made in this direction, as seen in the work of the Standing Committee on the relations of atmospheric conditions to the prevalence of acute diseases, of the American Medical Association; in the work of the Committee of the British Medical Association on the collective investigation of disease, and in here and there items of special investigations in local societies. Of these latter the Suffolk District Society of Massachusetts affords one of the best examples in its work of the past year. Its investigations on the subject of contamination of waters by sewerage, the best practical methods of epuration of the same, the quality of the milk supplied to the people of Boston and the best method of transporting the same from the producer to the consumer, indicate an activity, and a considerate practical direction to its work that is worthy of imitation.

American Gynæcological Society.—The ninth annual meeting of this Society commenced in the Palmer House, of this city, on Tuesday morning, Dr.

Albert A. Smith, of Philadelphia, President, in the chair. The number of members in attendance was not large, but the time was occupied through the day in the reading of several important papers, and the discussion of the questions to which they gave rise. In the evening the members of the Society were entertained at an elegant banquet given by the Chicago Gynæcological Society. Dr. A. Reeves Jackson presided at the table, and the occasion appeared to be highly enjoyed by all present. We expect a full report of the proceedings during the several sessions in time for the next number of the JOURNAL.

SOCIETY PROCEEDINGS.

SUFFOLK DISTRICT MEDICAL SOCIETY.

SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

ALBERT N. BLODGETT, M.D., SECRETARY.

June 7, 1884. The meeting was called to order at eight o'clock, Dr. E. M. Buckingham in the chair.

After presentation of a summary of the report of the previous regular and special meetings of the Section the reports of committees were called for.

The Secretary announced that the committee appointed at an earlier meeting to take into consideration the question of the milk supply of Boston had prepared a partial report, which was in the hands of the Secretary, who, by request, read as follows:

PRELIMINARY REPORT OF THE COMMITTEE APPOINTED TO TAKE INTO CONSIDERATION THE MILK SUPPLY OF BOSTON.

The committee appointed at the meeting of the Section on Feb. 27, 1884, "whose duty it shall be to report upon the whole subject of the providing of milk for Boston, and suggest the means of obtaining it pure for its citizens," have attended to that duty, and have held several meetings, at which all, or nearly all, the members of the committee have been present. They have visited the section of country from whence most of the milk supply of Boston is derived, and have endeavored to ascertain the manner in which it is treated at the farm where it is produced, and have followed its history as nearly as possible until it is delivered in the city. The committee has on several occasions had the benefit of the advice and counsel of those interested in the purity of our milk supply, and has considered the question of a change in the present methods of transportation and delivery, and has carefully examined several forms of cans for the transportation and delivery of milk, and has also made careful study and examination of many samples of milk obtained from different sources representing some of the various grades of milk sold for consumption. The committee has been so fortunate as to receive the offer of every facility for the continuance of its work from the office of the State Board of Health, as well as from that of the City Board of Health, and has been promised the assistance of the Milk Inspector of Boston in its efforts to devise a means for improving the quality of milk supplied to the people.

A work of such magnitude as that which has been intrusted to your committee could not be concluded in the limited time since the appointment of the committee, and it is desired at this time to present a preliminary report of progress with the suggestion that the committee be continued and allowed to prosecute its labors, and report to the Section at some future meeting of the Society.

The labor intrusted to the committee seemed legitimately to commence at the source of supply, the farmer's stable, where the cows are housed, and consequently one member of the committee has made a personal inspection of the farms and dairies in several localities. The investigation was made in four towns in Worcester county. It is the usual custom of the farmers after milking one or more cows to strain the milk into the eight-and-a-half-quart cans furnished by the contractors, which, when full, are set in cellars during the winter months, and in warm weather lowered in springs, wells, or put in tubs supplied with running water. A can partially filled in the morning is mixed with enough evening milk, after it is cooled, to fill the can. A letter or mark with chalk on each stopper indicates from whose farm the milk is obtained. Just before the milk is called for by the collector the stoppers are put in place. During the evening it is transported to the railroad station and put on board cars especially designed for this purpose. In the winter a small stove is used to prevent freezing. In the summer the cans are iced with great care. The milk arrives in Boston early the next morning, and is delivered to the distributors during the day.

Many farmers are careless in cooling the milk, and as a result it is returned sour by the contractors. This is nearly a total loss to the farmer as he receives no pay, and often the cream has been removed.

Many of the cows were very dirty, their hind flanks were covered with manure an inch or more thick, which must often drop into the pail, and is, no doubt, the deposit so frequently found in the consumer's supply. The contractors often complain to the farmers for not being more careful in this regard.

If a farmer waters the milk it is immediately returned, and to every man who comes to the car it is whispered very privately that Mr. W. has been caught, and a "request not to say anything about it." In a few days all in the town know it, and if the man chances to be a church member his punishment seems to be adequate.

None but "grade" cows are kept for supplying "railroad" milk, and their food is such as to improve the qnantity rather than the quality. In the winter English hay, shorts, cotton-seed meal, roots, and occasionally corn meal are fed. In the summer grass and corn fodder.

But very few of the farmers have silos.

The prime defect in the present system of milk

supply appears to your committee to consist mainly of two factors, namely, the employment of such a kind of can as admits of being opened without detection, whereby the milk may be variously manipulated, in the form of addition or subtraction, or both, and which gives to the consumer a deteriorated quality of milk, as the analyses of the State Board of Health conclusively show, the proportion of specimens which were found to be adulterated amounting to 90 per cent.

The other defect in the present system of supply is the habit, now almost universal, of keeping the milk received on one day until the next morning, thereby adding a considerable amount of time, sometimes as much as twenty-four hours, to the age of the milk when it finally reaches the consumer. This is a disadvantage in another respect, as it exposes the milk to whatever deleterious influences or infective processes may be contained in the place of storage, where it is necessarily exposed to the air in the process of mixing and putting into small cans for family service. The temptation to adulteration which here exists should not be forgotten, and it is at this part of its journey that by far the larger part of all adulteration is committed.

Any practical method of delivery to consumers immediately on the arrival of the milk in the city depots, and of avoidance of the process of mixing and recanning, would seem to offer a remedy for these two greatest dangers to which milk is exposed.

It might be said that it would only be inviting the farmer to adulterate the milk instead of allowing the retail milkmen to do so, but this would be less likely to occur, as any particular dairy could be easily identified, which is not possible under the present system.

Another disadvantage attending the prolonged keeping of milk, arises from the necessity of adding some chemical substance to prevent fermentation and souring. This addition may not be directly injurious, but it is an adulteration, and the addition of any foreign substance to milk should be condemned. It is also to be feared that the additions made to milk, particularly that sold in stores, are not always harmless.

The committee has examined several varieties of cans and glass jars for the transportation of milk from the source of supply. The system of glass jars has never been practically tried in this city, but from places where this system has been introduced it was learned that the loss by breakage is very considerable, amounting, on an average, to a complete renewal of the entire stock of jars once in three months. Your committee is unable to find any place where this system has long remained in operation except in the case of certain private individuals who carry on a limited business in milk, and charge an unusual price. This system seems entirely unsuited to the requirements of a general milk supply, and your committee cannot recommend it. A can holding sixty quarts was brought to the attention of your committee, and illustrated by a model. This can is of steel, made without solder, and is of strong and durable character. It is provided with a large opening for cleansing purposes, and may thus always be thoroughly freed from impurities before receiving milk. This can is to be filled at the farm of supply, and when full a cover is placed in the opening and securely fastened and sealed with lead so that it is thereafter impossible to obtain access to the interior of the can until the seal is removed by an authorized person. In this can the milk is cooled and transported to Boston in the same manner as is now done with the ordinary can. The milk can be withdrawn as required, only by inverting the can, when it flows freely from a valve-opening, which closes automatically the instant the milk ceases to flow through it. It is practically impossible to tamper with the contents of this can after the cover is adjusted, and efforts to introduce water by the orifice for pouring out the milk were not successful. Air is allowed to enter the can to replace the milk as this is poured out by means of a second guarded opening, through which it is impossible to introduce any foreign substance whatever. The advantages claimed for this can are its imperishable nature, its ease of cleansing, its perfect protection of the milk from manipulation or contamination, the thorough mixing of the milk at every withdrawal by the necessary inversion of the can, the impossibility of removing the cream from the milk, and a saving of several hours of time in the age of the milk when it is delivered to the consumer.

The objection was raised that the adoption of this can would preclude the possibility of obtaining the milk of one cow separately for the use of infants or invalids. The committee considered this point carefully, and came to the conclusion that this constituted no objection inasmuch as the milk now furnished to the people of Boston is almost invariably brought to the city in large tin cans, and is put into service cans for family use at the milk sheds after its arrival in Boston. It is, therefore, practically impossible to secure the milk from one single cow for any purposes whatever. Your committee also came to the conclusion that one cow's milk presented no advantage to recommend it above the mixed milk from a dairy of several cows. Indeed the advantage seemed to be on the side of the mixed milk, as this constitutes a protection to a certain extent against the perturbations of health and of the quality of milk supplied by any one animal.

Your committee also desires to point out the fact that the majority of people taking milk from milkmen are not acquainted with the varying character of this secretion at different times of year and under different conditions of health in the cow.

During the months when the cows are fed on hay the milk is generally much paler and somewhat thinner than when the cows are at pasture. By demanding at all seasons of the year a quality in milk which exists in it at only one season the people unconsciously encourage adulteration of milk, and thus defeat their own best interests.

With the hope of placing a supply of pure and wholesome milk within the reach of the inhabitants of the poorer parts of the city, and especially of sick children and invalids, your committee would suggest the establishment of "milk stations" in accessible and well-known localities, possibly in connection with the district dispensary establishments, or at certain

drug stores, to which the poorer people, and particularly the sick, might be referred by physicians or others, and by means of a ticket or voucher obtain a supply of pure milk at a cost within their means, instead of buying, as is now too often the case, milk which has been diluted sometimes to the extent of 60 per cent.

It is in the poorer parts of the city that the greater proportion of adulterated milk is to be looked for, and therefore it forms the supply of those who most need a pure and wholesome article. There can be but little doubt that the rate of mortality among children might be materially affected if it were possible to furnish pure and fresh milk to the inhabitants. The "depots," as suggested above, seem to your committee to be a step in this direction.

Signed by the committee.

HENRY O. MARCY, *Chairman*,
HENRY J. BARNES,
E. W. CUSHING,
LLOYD F. ABBOTT,
ALBERT N. BLODGETT, *Secretary*.

The report of the committee was accepted, and, in accordance with the suggestions contained in the paper, the committee was continued, in order that its labors may be prosecuted still further, and the utmost benefit derived from the thorough investigation of an important branch of domestic supply, upon which the lives and health of a large proportion of our population are more or less directly dependent.

The hour being already somewhat late it was voted that the reading of the papers appointed for this evening, by Dr. P. C. Knapp, on "Observations on the Cutaneous and Tendon Reflexes;" and Dr. F. Minot, on "Three Cases of Distended Gall-Bladder," be postponed to the next meeting. The readers having expressed their approval of this arrangement, and there being no further business before the Section, it was voted to adjourn, at 9:15 o'clock.

CHICAGO MEDICAL SOCIETY.

The regular semi-monthly meeting of this Society was held in Parlor 44, Grand Pacific Hotel, on Monday evening, September 15, at 8 o'clock. The President, Dr. D. A. K. Steele, in the chair. Dr. L. H. Montgomery, Secretary.

Dr. C. W. Earle read a brief paper on "Congenital Malformation of the Stomach," reciting the case of an infant that lived twelve days. Its life was sustained by very minute quantities of nourishment, he, during the time, being unable to diagnose the ailment. And it was only by permission of friends that an autopsy was made, when the trouble was ascertained. It consisted in there being no continuation from the stomach through the pylorus to the intestine, nor was there any communication whatever between the stomach and duodenum. The child's biliary secretion seemed healthy enough and was passed from the bowels, as well as the meconium.

The speaker also read a report of a case of bony tumor of the female pelvis and exhibited the specimens of both the above cases. The latter's weight was 3½ pounds. Both of which were believed to be rarely met with. They were accordingly, but informally discussed.

The Secretary, Dr. Liston H. Montgomery, presented the following resolutions and moved their adoption:

WHEREAS, From present reports and indications in foreign countries, cholera and yellow fever (both pestilential diseases) prevail, and as the latter especially is always assuming a threatening attitude toward us, and is not conducive to our national prosperity, nor to public health, and should, if possible, be averted with earnest and efficient sanitary measures, and

WHEREAS, Cholera may make its appearance on this continent ere another twelve months should elapse, and should likewise, if possible, be averted or restricted to the narrowest limits, therefore,

Resolved, That it is the sense of the Chicago Medical Society to have that department of the government relating to public health, recognize the services of able sanitarians who constitute the National Board of Health, for the purpose of coöperating with municipal, State, and other organizations of a similar kind, and that a committee of seven (7) members of this Society be appointed by the Chair to draft suitable resolutions in behalf of said National Board.

Resolved, Furthermore, that this committee present said resolutions to the Congress of the United States, memorializing that body to make a sufficient appropriation for the purpose of said Board for scientific investigation in the prevention and restriction of epidemic, preventable and pestilential diseases.

We believe this action should be promptly taken at the coming session of our national legislature, and that a thorough sanitary organization of the nation should be recognized, and with it absolute enforcement of the best means for the protection of her citizens, and the improvement of our inter-State sanitary condition.

The mover of the resolutions stated that, inasmuch as they had been published on the postal card announcements, every officer and member of the Society, which consisted of about 276 members, had (he presumed) become familiar with the object aimed at in presenting them. He desired a full discussion, and to hear the views of each member present, if time permitted. If they are adopted, broad-minded, philanthropic men in official life will see their value when the first case of cholera appears on our borders, which we trust may never occur, but which is by no means impossible by next June. Then we will wish that thorough vigilance and a more thorough organization had taken place. The time, therefore, for more effective measures to be taken, is to begin now—months before the probable advent of the disease. It seems to me that the scientific, sanitary and commercial interests of the nation all demand the perpetuation of its National Board of Health. The resolutions were promptly seconded by Drs. R. E. Starkweather and H. J. Reynolds, and after a lengthy discussion, which was participated in by many members, each of whom favored the object of the resolutions, the motion to adopt *unanimously prevailed*.

The President stated that he wished a little time to

consider the appointment of so important a committee as is called for by the resolutions.

Dr. Edmund Andrews offered the following motion, which was duly seconded by Dr. C. E. Webster: "That this Society hereby express its thanks to Dr. Vincent L. Hurlbut for the gift of a very valuable collection of books and pamphlets, consisting of 300 volumes, to the Library Committee of the Society, for the Chicago Public Library." In behalf of the Library Committee, the speaker continued by stating that there are on the shelves of the city Library 1,200 volumes for medical reference. The Library authorities have bound, at their own expense, 75 volumes. The report was considered a flattering one, especially when the project to establish a medical department by this Society, to the Public Library was inaugurated so recently as last spring. The closing remarks of Dr. Andrews elicited a hearty and unanimous vote of thanks for Dr. Hurlbut.

The chair announced the following gentlemen to constitute the committee as provided for in the resolutions previously adopted: Dr. O. C. DeWolf, Dr. R. E. Starkweather, Dr. L. H. Montgomery, Dr. John Bartlett, Dr. J. H. Etheridge, Dr. A. R. Jackson, Dr. J. H. Hollister.

Dr. H. A. Johnson asked to be excused from serving on the committee, for the reason that he was the representative from Illinois on the National Board of Health, his resignation not having been accepted by the President of the United States. He took pleasure in extending an invitation to the committee to call upon him at his library, and he would render to its members all the assistance he could, and impart any information he had received from his experience as a member of the National Board of Health. His library also was at the disposal of the committee.

Dr. J. H. Etheridge then moved that the committee be authorized to present their resolutions to the Society for a final consideration, and then submit them to Congress.

The motion was carried, and the Society adjourned. L. H. M.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

The regular annual meeting of this Society, which had been called to commence its sittings in the Representatives' Hall of the State House in Springfield, Ill., at 10 o'clock A. M., of Sept. 23, 1884, did not organize for business until 2 P. M., on account of the copious rain and the small number in attendance at the morning hour. At 2 P. M., the Society was called to order by the President, Dr. B. M. Griffith, of Springfield. An opening prayer was made by Rev. R. O. Post, and in the absence of Gov. Hamilton, Judge Matheny welcomed the members of the Society in a brief and appropriate address. This was responded to in equally appropriate terms by Dr. Joseph Eastman, of Indianapolis. These formalities having been completed, Dr. Wm. A. Byrd, of Quincy, Ill., read an interesting paper on the nature of "Gall-Stones," and the most effectual means of prevention, and of treatment after they are already formed. After some discussion, the Society adjourned until 7:30 P. M., when on reassembling, the President, Dr. B. M. Griffith, delivered the annual address. He pointed out with clearness the objects of the Society, the best methods of securing them, and the more important relations of the profession to the community. After the address, the members were cordially and elegantly entertained at the residences of Drs. Griffith, Million, and Buck.

Second Day.—The Society was again called to order by the President at 10 A. M., in the Senate Chamber. Dr. Archibald Dixon, of Henderson, Ky., read a paper on "The Work of the Past Year." Dr. R. E. Houghton, of Indianapolis, Ind., one on the "Relation of Nerve to Muscle, being the basis of Antipyretic Treatment in Fevers and Inflammations," and Dr. Amos Sawyer, of Hillsboro, Ill., one entitled "Thoughts on Evolution." The reading of each of these papers was followed by a discussion, in which many of the members participated with more or less interest and profit, yet without adding much that was really new to the stock of professional knowledge previously existing. The Society then adjourned until 2 P. M. On reassembling in the afternoon, Dr. Joseph Eastman, of Indianapolis, read a paper entitled, "An Enemy Came and Sowed Tares." Dr. H. B. Buck, of Springfield, presented the subject of "Electricity in Gynæcological Practice." Dr. T. S. Galbraith, of Seymour, Ind., read a paper on "Perimetritis;" and Dr. Geo. B. Walker, of Evansville, one on the "Means of Relief in Difficult Labors."

These several papers were well written and each contained some facts of value, although their reading left but little time for general discussion. An evening session was held, to which the public generally was invited, and an address was delivered by Dr. H. A. Johnson, of Chicago, on "Preventive Medicine." The advancements in sanitary science; their importance in preventing disease, and especially in limiting the spread of epidemics, were discussed in a popular and yet interesting and eloquent manner. Like nearly all the sanitarians of the present day, he urged thorough *cleanliness* as the great desideratum to be attained by sanitation, both public and private. At the close of the address, a motion was adopted requesting the speaker to furnish a copy for publication in both medical and secular papers. The Society then adjourned to 9 o'clock the following morning.

Third Day.—The Society was called to order at 9 A. M., the President in the chair. Papers were read as follows: By Dr. H. C. Fairbrother, of East St. Louis, on "Repair of Bones;" by Dr. J. A. Sutcliffe, of Indianapolis, on a "Case of Malignant Disease of the Testicles;" by Dr. Wright, of Onley, on "Exsection of the Radius;" by Dr. A. G. Bernays, of St. Louis, on "Chips from a Surgeon's Workshop;" and by Dr. G. N. Kreider, of Springfield, on "Dislocations of the Shoulder." From the little disposition manifested to occupy time in the discussion of the topics presented in these several papers, as well as from the unexpectedly small number of members present, it became manifest that this would be the last day of the session. After the reading of papers

was closed, the following officers were nominated and elected for the ensuing year:

President—Dr. F. W. Beard, of Indiana.

First Vice-President—Dr. A. B. Miller, of Missouri.

Second Vice-President—Dr. J. A. Sutcliffe, of Indiana.

Third Vice-President—Dr. E. H. Luckett, of Kentucky.

Secretary—Dr. G. W. Burton, of Indiana.

Assistant Secretary—Dr. H. J. B. Wright, of Illinois.

Treasurer—Dr. A. M. Owen, of Indiana.

Chairmen of committees as follows:

On Programme, Dr. A. M. Owen, of Indiana.

On Surgery, Dr. W. A. Byrd, of Illinois.

On Practice of Medicine, Dr. Arch Dixon, of Kentucky.

On Gynæcology, Dr. George J. Engleman, Jr.

On Obstetrics, Dr. G. B. Walker, of Indiana.

On Therapeutics and Hygiene, Dr. J. F. Hibbard, of Indiana.

On Ophthalmology and Laryngology, Dr. J. L. Thompson, of Indiana.

On Chemistry and Toxicology, Dr. J. G. Hynman, of Indiana.

On Legal Medicine, Dr. Jacob Gregory, of Missouri.

It was decided to hold the next meeting at Evansville, Ind., on the second Tuesday of June, to continue three days.

The business part of the annual meeting was then closed by adjournment. But many of the members assembled again in the State House in the evening to participate in a microscopical entertainment, in company with many amateur microscopists of both sexes. The occasion was one of much pleasure and profit to those in attendance, both in a scientific and social aspect. F.

SECRETARIES OF STATE MEDICAL SOCIETIES.

The following list of Secretaries of State Medical Societies and their P. O. address will be found very convenient and useful in facilitating correspondence with such societies:

STATE.	NAME.	POST OFFICE.
Alabama	Dr. T. A. Means	Montgomery.
Arkansas	Dr. L. P. Gibson	Little Rock.
California	Dr. W. A. Briggs	Sacramento.
Colorado	Dr. G. W. Cox	Denver.
Connecticut	Dr. S. B. St. John	Hartford.
Delaware	Dr. G. W. Marshall	Milford.
District of Columbia	Dr. C. H. A. Kleinschmidt	Washington.
Florida	Dr. A. L. Randolph	Tallahassee.
Georgia	Dr. J. A. Gray	Atlanta.
Illinois	Dr. S. J. Jones	Chicago.
Indiana	Dr. E. S. Elder	Indianapolis.
Iowa	Dr. J. F. Kennedy	Des Moines.
Kansas	Dr. F. D. Morse	Lawrence.
Kentucky	Dr. L. P. McMurtry	Louisville.
Louisiana	Dr. P. B. McCutcheon	New Orleans.
Maine	Dr. C. D. Smith	Portland.
Maryland	Dr. G. L. Taneyhill	Baltimore.
Massachusetts	Dr. F. W. Goss	Boston.
Michigan	Dr. G. E. Ranney	Lansing.
Minnesota	Dr. C. H. Boardman	St. Paul.
Mississippi	Dr. W. E. Todd	Clinton.
Missouri	Dr. C. A. Todd	St. Louis.
Nebraska	Dr. A. S. v. Mansfelde	Ashland.
New Hampshire	Dr. M. W. Russell	Concord.
New Jersey	Dr. W. Pierson	Orange.
New York	Dr. E. D. Ferguson	Troy.
North Carolina	Dr. L. J. Picot	Littleton.
Ohio	Dr. G. D. Collamer	Toledo.
Oregon	Dr. E. P. Fraser	Portland.
Pennsylvania	Dr. W. B. Atkinson	Philadelphia.
Rhode Island	Dr. G. D. Hersey	Providence.
South Carolina	Dr. J. Forest	Charleston.
Tennessee	Dr. C. C. Fite	Nashville.
Texas	Dr. W. J. Burt	Austin.
Vermont	Dr. J. S. Richmond	Woodstock.
Virginia	Dr. L. B. Edwards	Richmond.
West Virginia	Dr. L. Jepson	Wheeling.
Wisconsin	Dr. J. T. Reeve	Appleton.

STATE MEDICINE.

AMERICAN PUBLIC HEALTH ASSOCIATION.

TWELFTH ANNUAL MEETING, ST. LOUIS, MO., 1884.

The American Public Health Association will convene at St. Louis, Mo., Tuesday, Oct. 14, at 10 o'clock A. M., and continue four days. The meetings will be held in Liederkranz Hall, corner of Thirteenth street and Chouteau avenue.

Papers have been promised for this meeting as follows: on

1. Hygiene of the Habitations of the Poor.—Major Samuel A. Robinson, Inspector of Plumbing of the District of Columbia; Chas. W. Chancellor, M.D., Secretary State Board of Health, Maryland; Wm. K. Newton, M.D., Health Officer, Paterson, N. J.

2. Hygiene of Occupations.—George H. Rohé, M.D., Professor of Hygiene, College of Physicians and Surgeons, Baltimore, Md.; Walter Wyman, M.D., Surgeon U. S. Marine Hospital Service; J. W. Chambers, M.D., Baltimore, Md.

3. School Hygiene.—Samuel W. Abbott, M.D., Health Officer State Board of Health, Lunacy, and Charity, Mass.; Edward M. Hartwell, M.D., Johns Hopkins University; Stephen O. Richey, M.D., Washington, D. C.; Felix Formento, M.D., New Orleans, La.

4. Adulteration of Food.—Hon. Erastus Brooks, Member State Board of Health, New York; Prof. H. B. Cornwall, Princeton College, New Jersey; Chas. E. Munroe, S.B., Professor of Chemistry, United States Naval Academy, Annapolis, Md.; Prof. V. C. Vaughan, M.D., Member State Board of Health, Ann Arbor, Mich.; J. Cheston Morris, M.D., Philadelphia, Pa.

5. Water Pollution.—Major Chas. Smart, M.D., Surgeon United States Army, Member of the National Board of Health; Henry M. Baker, M.D., Secretary State Board of Health, Michigan; Thad. M. Stevens, M.D., Indianapolis, Ind.

6. Disposal of Sewage by Irrigation or Chemical Action.—Henry P. Walcott, M.D., Chairman State Board of Health, Lunacy, and Charity, Massachusetts; Geo. N. Bell, C. E., Newport, R. I.; W. John Harris, M.D., St. Louis, Mo.

7. The Observable Effect Upon the Public Health of Official Sanitary Supervision.—Colonel George E. Waring, C. E., Secretary National Board of Health, Newport, R. I.

8. The Work of Municipal and State Boards of Health.—Reported by their Secretaries.

9. On Disease Germs.—Major Geo. M. Sternberg, M.D., Surgeon United States Army; L. Bremer, M.D.,

St. Louis, Mo.; W. W. Vinnedge, M.D., Member State Board of Health, Lafayette, Ind.; W. H. Stillwell, M.D., Humboldt, Tenn.

10. Cremation as a Sanitary Measure in Times of Great Epidemics.—John Morris, M.D., Baltimore, Md.; Rev. John D. Beugless, Chaplain United States Navy, Brooklyn, N. Y.

11. A Survey of the Present Sanitary Situation in St. Louis.—Being a series of short papers on leading public health topics, contributed by city officials and local sanitarians.

a. The Situation, Soil, and Surroundings of St. Louis, considered from a Hygienic Standpoint. By Col. Henry Flad, C. E., President Board of Public Improvements.

b. Organization of Health Department, Sanitary Legislation, and the Abatement of Nuisances. By John D. Stevenson, Esq., Health Commissioner.

c. Sources, Quality, etc., of the Milk and Meat Supplies of St. Louis. By Joseph Spiegelhalter, M.D., Member Board of Health, and J. C. Cabanné, Esq.

d. Street Paving and the Public Water Supply.—By Thomas J. Whitman, Water Commissioner, and J. W. Turner, Street Commissioner.

e. On the Average Temperatures and Prevailing Climatic Conditions of St. Louis. By Prof. F. E. Nipher, Washington University.

f. Public Sewerage and House Drainage. By Robert Moore, C. E.

g. The leading local (productive) Industries, and their Effect on the Health and Lives of their Operatives. By George Homan, M.D.

h. The Infant and School Populations and existing Causes unfavorable to their Health. By J. P. Kingsley, M.D., Professor of Physiology and Diseases of Children, Mo. Med. College.

i. The Chief Local Factors in the Causation of Disease and Death. By Robert Luedeking, M.D., Professor Pathological Anatomy, St. Louis Med. College.

Several papers have been promised in addition to the above, among which are: on Heating and Ventilation, Chas. O. Curtman, M.D., Professor of Chemistry, Mo. Med. College, St. Louis, Mo.; on Protective Spectacles, Adolphus Alt, M.D., Editor *American Journal of Ophthalmology*, St. Louis, Mo.; on Prevention of Syphilis, J. D. Gatch, M.D., Lawrenceburg, Ind.; on Hygiene of the Nervous System and Mind, C. H. Hughes, M.D., Editor of the *Alienist and Neurologist*, St. Louis, Mo.; on the Sanitary Management of Railway Cars and Stations, W. Thornton Parker, M.D., Acting Assistant Surgeon U. S. Army.

Full reports are expected from all Committees.

The headquarters of the Executive Committee will be at the Southern Hotel. The first meeting of the Committee will be held Monday, Oct. 13, at 2:30 P. M.

The Conference of State Boards of Health will meet at Liederkranz Hall, Monday, October 13, at 2:30 P. M.

The subjects for each day's consideration will be stated the previous day, and an official programme will appear each morning. Ample time for discussion will be allowed under the rules of the Association, and all discussions will be stenographically reported. The morning sessions will be adjourned at 2:30 P. M. daily, to permit the meeting of the Executive Committee, Advisory Council, and Conference of State Boards in the afternoon, and to enable members to visit the Missouri State Fair, which will be open until October 18.

Applications for certificates to enable members and those intending to become members and their families to obtain the reduced rates offered by the various railroad lines to St. Louis, should be made without delay to the Committee of Arrangements: Dr. Joseph Spiegelhalter, Chairman, 1100 Chouteau avenue; Dr. George Homan, Secretary, 703 Washington avenue.

All papers offered the Association become its exclusive property, will be copyrighted, and can only be published by consent of the Executive Committee. All reports and papers must be in the hands of the Secretary by October 12, in order to receive the approval of the Committee. After October 5 all communications to the Secretary should be sent to Southern Hotel, St. Louis, Mo.

Clergymen, engineers, architects, builders and others interested in the practical work of the Association, are cordially invited to be present.

Ladies are especially invited to attend the evening meetings of the Association.

Per order Executive Committee.

IRVING A. WATSON, Secretary.

Concord, N. H., Sept. 27, 1884.

DOMESTIC CORRESPONDENCE.

"THE COMMUNITY OF ORIGIN OF DIPHTHERIA, TYPHOID FEVER AND SCARLATINA."

EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

In your JOURNAL of August 30, was published a paper upon the above subject, which had been read by Dr. E. O. Bardwell at a recent meeting of the Iowa and Illinois Central District Medical Association.

Dr. B. gave, as confirmative evidence of such a theory, examples of the prevalence of one or more of these diseases at different seasons in five different places more or less widely separated, and all in bad sanitary condition. They, if taken singly, might be held to support his theory, but studied collectively and *chronologically*, tend rather to uphold the opinions of the specificity and the propagation of the poisons of these diseases from one to another place.

Typhoid fever had prevailed in all of the places in previous years but failed to appear in any of them in 1882, and diphtheria was endemic that season. The first notice made of diphtheria was in the fall of 1880, when two cases were treated and one died at No. 2. Sometime in 1882 (the time of year was not specified) two cases occurred at No. 1. About March of the same year (and it is important to know whether this

case preceded those above) one case appeared at No. 3. No. 3 is the nearest of the four places to No. 2, where the disease originally showed itself. In September following, No. 5 furnished 15 cases, with four deaths, and in December and January, 30 cases developed, and six ended fatally at No. 4.

It is thus seen that No. 2, which alone was visited by diphtheria in 1880, was the only place that escaped having the disease in 1882. Also that 45 out of 48 cases in all, occurred in two places, (Nos. 4 and 5). The appearance of the disease in No. 5 was followed by its development in No. 4 *two or three months later.* The probability of the seeds of the disease having been conveyed from one of these localities to the other is also favored by their proximity. No. 5 is "a valley nine miles long, and reaches out nearly at right angles to the one just mentioned," *i. e.* No. 4.

So much for diphtheria. Scarlet fever occurred in Nos. 2, 3 and 4. At No. 2, a child contracted scarlet fever in the summer of 1880, "without having been away from home or having had visitors for three months." However this may be, it is a suspicious circumstance that scarlet fever occurred that year in but one other of the places (No. 3), and that is the nearest one—being only four miles from No. 2. The suspicion that some communication existed between Nos. 2 and 3 is strengthened by the fact that a case of typhoid fever developed at the former in the spring of 1881, and the summer of the same year the disease made its first appearance at the the latter place. The scarlet fever at No. 4 was in a mild form, and followed a few months later the attacks of diphtheria in 1882.

Now, as Dr. Bardwell has failed, or it may be has not attempted to trace the propagation of these diseases from one to the other, within the limited space of the five different places, it is fully as reasonable to suppose that he has overlooked the sources from whence the first cases derived their germs from antecedent attacks of the diseases.

If the the three diseases were developed from a common origin, the one or other being evolved from the same nidus according to the peculiar nature of the predisposing force, it is strange that this force should have brought forth nothing but typhoid fever season after season for some years before the appearance of either of the other two diseases. And this is the more strange since the conditions giving rise to the different diseases cannot be widely different from each other. This is proven by the coexistence of two or all of them in the same season.

Neither of the diseases was very exacting regarding the conditions necessary for its development, as winter or summer alike favored the presence of all.

H. D. FRY, M.D.

Washington, D. C.

FRACTURE OF THE CERVICAL VERTEBRÆ.

CAMBRIDGE, MASS., Sept. 25, 1884.

N. S. DAVIS, M.D., EDITOR:

Dear Doctor.—In your last issue of the JOURNAL, Sept. 20, 1884, on page 327, there is a report of a case (by Prof. Küster, *Centralblatt für Chirurgie:* Edinburgh *Clinical Journal*) of complete recovery after fracture of a cervical vertebra, contrary though, as the author remarks, to all previous experience. This report calls to mind a case of fracture of the axis which occurred in my practice several years ago. The following is taken from my notes: J. C. C., a man aged 61 years, fell from a pear tree eighteen feet, striking his head upon the ground and sustaining a fracture of the axis through or near the articulating process on the right side. The fracture was oblique and downwards, evidently involving the body of the axis which supports the odontoid process. The patient was seen at the time by several physicians, none of whom doubted that the patient had sustained a severe fracture of a cervical vertebra. Dr. Morrill Wyman of this city, saw the patient with me several times in consultation. The accident occurred on the 23d day of September, 1872, and the patient was unable to leave his house until the following June, 1873. For nearly four months the patient was obliged to lie in bed on the left side and for several weeks was unable to turn or raise the head; and it was with the greatest difficulty the nurse or attendants succeeded in changing or arranging his pillows owing to the severe suffering attendant on raising his head even for a moment. No attempt at reduction of the osseous parts was deemed advisable, the patient, though suffering from symptoms of a reflex excitability, did not appear to suffer from any marked motor paresis. Morphia was freely used to control the pain, and hydrate of chloral for the nervous disturbance. Several weeks after the occurrence of the accident, the patient had an acute attack of phlebitis of the left leg and foot. This gradually yielded under appropriate treatment; the patient after his recovery from the fall, as was to be expected, had his head inclined to the left and though the parts were quite stiffly fixed, he experienced but little inconvenience. There was marked evidence of the fracture the patient sustained by the fall, in the shape of a callus or hard prominence of the osseous tissues. This was observed more particularly posteriorly and on the right of the axis. The patient at length recovered from all his nervous symptoms, and was in fair health until 1879, when after a series of reverses in his fortune he began to be troubled with cough and difficult micturition. He had enlargement of the prostate, and there was a residual sediment of the urine. In May, 1881, the patient began to suffer from a severe gastritis, which after a few months presented symptoms of malignant disease of the stomach. The patient became extremely emaciated, and died Dec. 9, 1881.

Autopsy revealed a large cancerous mass of the stomach in front of the pylorus; the stomach was very much contracted in size; the malignant mass was raised above the inner surface of the stomach. It was a sort of fungoid, darkish, and was the probable source of the hæmorrhage from which the patient suffered. Both lungs were extensively adherent; the heart was normal. There was only one kidney; this was on the right side. Positively there was none on the left, but there was a ureter on the left, but it was impervious. The peritonæum on the inside was thick-

ly dotted with little white points. The kidney was somewhat larger than normal, but showed no positive indication of disease. The liver and spleen were highly congested. The bladder was somewhat contracted but otherwise healthy. The prostate gland was larger than normal, but it was not excessively so. The spinal column was curved laterally. The body of the patient being so greatly emaciated evidence became conclusive of fracture. There was a marked osseous callus or protuberance (prominence) of the right lamina of the axis extruding through the articulating process, and into the body of the vertebra. The axis was not removed, but none of the physicians who attended the autopsy, including Medical Examiner Dr. A. T. Holt, who conducted the examination, had the slightest doubt that the patient had sustained a fracture of a cervical vertebra as above described.

Very respectfully, your obedient servant,

AUGUSTUS P. CLARKE, M.D.

BOOK REVIEWS.

SECOND ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF INDIANA, For the Fiscal Year Ending Oct. 31, 1883. Cloth. 335 pages.

The report shows that the Board have given their attention to the sanitary condition of the school houses throughout the State, a matter of fundamental importance, and one in which school authorities are often criminally negligent. This is true not only of the neglected country school houses but also of the crowded city buildings, and it is a matter worthy of remark that it is generally in the simplest matters of hygiene that the fault exists. Surely this is due more to carelessness than to ignorance on the part of the school authorities.

Several contributors to this report call attention to the importance to public health of some effectual measure for the prevention of syphilitic contagion.

The apparent spread of this disease, its direct relation to the present and future strength of the nation, morally as well as physically, make these suggestions worthy of careful attention. The gross ignorance of the public respecting this subject; the consummate skill with which the unprincipled in medical practice turn this ignorance to personal gain; the sense of modesty as well as the personal unfitness which prevents alike the religious and secular teacher from raising his voice against this hidden evil, an evil still more dangerous because it is concealed, all make it incumbent upon some one, and who better than an impartial public board, whose function is that of guarding the public health, to take the matter in serious consideration with a view to inaugurating efficient measures for its suppression.

The latter half of the volume is occupied by the report concerning vital statistics of the State for 1883. It consists of copies of blanks sent out, of reports received, and of tabulated statements respecting deaths, births, and other matters pertaining to this department of the work of the board.

MISCELLANEOUS.

CLITROPHOBIA.

Not clitoriophobia (or clitorisphobia) which is a disease confined to gynæcologists, but clitrophobia, a term used by an Italian writer (*Revista Clin. de Bologna*) to designate three cases suffering from a cerebral affection resembling agarophobia, and which consists in a marked horror of being confined in a close place. They suffer, when so confined, in an extremely painful manner, the head becomes hot, the temporal arteries beat forcibly, they become furious and make desperate efforts to open the door, try to get out of the window or to kill themselves when they find they cannot escape.

It seems to constitute a pure monomania, that is to say it may exist without any manifestation of delirium. At other times it is accompanied by other psychological affections.

THE ITALIAN QUARANTINE AS AFFECTING MEDICAL JOURNALS.

The *Journal d'Accouchments* tells us that everything going into Italy from France, individuals, merchandise and correspondence undergoes a rigorous disinfection. Dr. Koch on his return to Germany, was thoroughly disinfected at the Italian frontier, he should have passed by declaring that the germs might be in his intestines and therefore not reached by the disinfectants. It seems that two wagons, one loaded with chloride of lime and the other with phenic acid, were disinfected at Chiasso? The rule was that everything should be disinfected that passed the frontier, and it was done.

The *Progrès Médical* states that many of its Italian exchanges have desired a suspension of that journal during the prevalence of the epidemic, "the journals arrive all torn and reduced almost to their titles from the disinfection which they undergo." Many travellers have been nearly asphyxiated in the rooms used for disinfection, when they have been obliged to remain for any length of time, and have consequently been seriously affected.

THE MEDICAL DEPARTMENT OF THE CHICAGO PUBLIC LIBRARY.

The Chicago Medical Society wishes to inform the profession that there are now 1,200 bound volumes of medical books in the Public Library, in a convenient location to be consulted by the profession.

The majority of these works have recently been purchased by the Society Committee on Library. They embrace a carefully chosen collection of the best known recent medical authorities in English and foreign languages.

Most of the standard works on the leading specialties (including dental surgery) have been obtained, and also some books on pharmacy. The funds for this purchase consisted of an appropriation of $500 from the Society treasury, supplemented by voluntary contributions from the physicians and druggists of this city.

Valuable contributions of older works were also received from some sources.

This collection is located in the southeast corner of the south room of the upper floor, and a large table and chairs have been provided for the convenience of physicians. The librarian of the upper floor will show the way to those desiring to consult the books.

By agreement with Mr. Poole, the books will not be loaned out, but kept in the Reference List for consultation, so as always to be found when needed.

There will also be found a good representation of American and foreign periodicals, which can be inquired for at the librarian's counter.

A large and valuable collection of old journals is not yet on the shelves, for lack of money to bind them. Most of these were donated by Dr. Vincent L. Hurlbut.

EDMUND ANDREWS, M.D.,
F. C. HOTZ, M.D.,
DAVID GRAHAM, M.D.,
Committee on Library.

TOBACCO AS AN ANTIZYMASIC.

M. Pecholier in the *Montpellier Medical* considers that the use of tobacco preserves one from an infinity of contagious diseases. He thinks that as typhoid fever is due to a ferment, the pullulation and life of which in the organism is the initial cause of the disease, tobacco is the most powerful destructive agent, and that its action is due to nicotine; he declares that a number of smokers have been protected from epidemic influences through tobacco. Perhaps it is for this reason that Willis recommends the use of tobacco in armies, as a preservative against certain epidemic diseases.

DECORATIONS OF MEDICAL MEN.

It would seem as if our foreign brethren *must* have decorations of some kind, to judge from the letter of a correspondent of the *Medical Press and Circular*, who tells us that one of the guests at the reception of the King of Denmark, at Christiansberg, during the meeting of the International Medical Congress, wore upon his breast the proud shield of "a bicycle club." The American delegate comes in for his share however, in the retort said to have been made by the King in reply to the assertion that "in America we are all Kings." "I am glad to meet a brother, all in the same business." Old, but still good and applicable.

A STATUE TO DR. GUISLAIN.

An effort is being made to secure subscriptions for the erection of a statue to *Dr. Joseph Guislain*. The members of the Society of Mental Medicine of Belgium are actively interested in promoting this object, and desire that all specialists in this department of medicine have an opportunity to subscribe, and that the statue represent the combined subscriptions of the specialists in mental diseases of the world, rather than any given district. To this end, subscriptions have been received from England, France, Russia, Germany, Italy, Holland and Sweden, in sums varying from 5 to 25 francs. The United States is, as yet, not represented. We trust this notice may come to the eyes of medical men especially interested in this department of medicine, of which Dr. Guislain was so distinguished a member. We hope the subscriptions from America towards the erection of this statue will compare favorably with those of other countries. Subscriptions may be sent to Dr. B. C. Ingels, Medecin de l'Hospice-Guislain à Gand, Belgium.

All subscriptions are published in list form, and will be sent to subscribers.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM SEPTEMBER 20, 1884, TO SEPTEMBER 26, 1884.

Middleton, Passmore, Major and Surgeon, having reported from sick leave of absence, assigned to duty at Fort Leavenworth, Kan. (Par. 2, S. O. 188, Hdqr's Dept. of Mo., Sept. 19, 1884.)

White, Robert H.. Captain and Assistant-Surgeon, ordered for duty as Post Surgeon, Fort Gaston, Cal. (Par. 2, S. O. 110, Hdqr's Dept. of Cal., Sept. 13, 1884.)

Wilson, Wm. J., Captain and Assistant-Surgeon, from Dept. of Dak. to Dept. of the East.

Gardiner, J. de B. W., Captain and Assistant-Surgeon, from Dept. of Ariz. to Dept. of the East.

Corbusier, Wm. H., Captain and Assistant-Surgeon, from Dept. of East, to Dept. of Ariz.

La Garde, L. A., Captain and Assistant-Surgeon, from Dept. of Mo. to Dept. of Dak. (Par. 1, S. O. 220, A. G. O., Sept. 19, 1884.)

Hall, Jno. D., Captain and Assistant-Surgeon, assigned to duty at Fort Townsend, W. T., to relieve Surgeon R. S. Vickery. Surgeon Vickery on being relieved, directed to report to commanding officer Vancouver Bks., W. T., for duty. (Par. 3, S. O. 140, Hdqr's Dept. of Col., Sept. 15, 1884.)

Birmingham, H. P., First Lieutenant and Assistant-Surgeon, leave of absence extended 20 days. (Par. 2, S. O. 116, Hdqr's Div. of the Mo., Sept. 22, 1884.

Barrows, C. C., First Lieutenant and Assistant-Surgeon, granted one month's leave of absence with permission to apply to the proper authority for an extension of one month. (Par. 4, S. O. 86, Hdqr's Dept. of Ariz., Sept. 13, 1884.)

Diety, W. D., First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Selden, N. M. (Post Surgeon.) (Par. 4, S. O. 187, Hdqr's Dept. of Mo., Sept. 18, 1884.)

McCaw, W. D., First Lieutenant and Assistant-Surgeon, assigned to duty as Post Surgeon, Fort Craig, N. M. (Par. 5, S. O. 187, Hdqr's Dept. of Mo., Sept. 18, 1884.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING SEPTEMBER 27, 1884.

Bloodgood, D., Medical Inspector, to Washington for examination preliminary to promotion, and as to qualifications for sea duty, Oct. 1, 1884.

Hord, W. T., Medical Director, as member of Naval Examining Board, Oct. 1, 1884.

Turner, T. J., Medical Director, as member of Naval Examining Board, Oct. 1, 1884.

Boyd, J. C., Passed Assistant-Surgeon, placed on waiting orders, Sept. 25, 1884.

Oberly, A. S., Surgeon, to Washington for examination preliminary to promotion, and as to qualifications for sea duty, Oct. 1, 1884.

THE

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ORIGINAL ARTICLES.

ON OCCIPITO-POSTERIOR PRESENTATIONS.

BY ISAAC E. TAYLOR, M.D., OF NEW YORK.

Read before the Section on Obstetrics and Diseases of Women, American Medical Association, May 8, 1884.

MR. CHAIRMAN, AND GENTLEMEN OF THE SECTION ON OBSTETRICS AND THE DISEASES OF WOMEN:—Requested by your honored and distinguished chairman to present a paper at this meeting on some subject appertaining to the branch of the profession we are all interested in, I thought that a few remarks on the management and rectification of the child's head in the occipito-posterior position in difficult cases might not prove to be unacceptable.

I selected this subject in lieu of a paper on some gynæcological topic, having understood that there were several papers in that department to be offered for our edification.

The subject I propose to consider is one which, at the present day, might appear to be almost superfluous and useless for any one to undertake, much less to offer anything different from that which is generally practiced respecting the management of the delivery of the child in these presentations. These presentations of the child's head are of an everyday occurrence, as we are all cognizant of and with.

The frequency, as well as the mechanism of this class of cases in midwifery, was not clearly comprehended by the profession until Nagele, Sr., issued his celebrated monograph in 1819, "On the Mechanism of Parturition," controverting and reversing almost entirely the views and opinions existing and prevalent at that time. Nagele announced in that essay "that the process by which the head of the child had been considered as a regular phenomenon was a deviation; and exactly that which had been esteemed a deviation from the usual course and rule, was perfectly regular," which is, that the third position of the vertex is after the first position by far the most frequent in occurrence of all the cranial presentations, the frequency being almost as 1 to 2, and that the second and fourth positions were exceedingly rare—the second more rare than the fourth.

Out of 1,244 cases, Nagele had seen only 17 cases in the fourth position. None in the second. Nagele considered that there was but two presentations of the child's head occupying the superior strait at the commencement of labor.

The first position is when the occiput is located at the left foramen ovale, and the forehead looking to the right sacro-iliac synchondrosis.

The second is the very reverse of the first. With this view of the subject, according to Nagele, the right oblique diameter is principally and chiefly occupied by the child's head. Such was the high estimation at that time respecting the views and opinions of Nagele from his experience, that for many years they were considered as accepted truths, and his essay was styled the "Euclid of obstetrics."

Rigby, Sr., translated Nagele's monograph, and published it in England in 1829. He endorsed fully the views and opinions of Nagele. This is only 55 years ago.

The subject therefore as to the correct and true mechanism of the occipito-posterior presentations of the child's head, and their frequency, is not so very old as to preclude any further consideration and observation. Respecting the management and rectification of those difficult cranial presentations, which all of us are every now and then meeting with, I defer to such a scientific and learned assembly of medical gentlemen, coming from every section of this country. I trust we will not despise "the day of small things," in desiring to attain the object I have in view, nor that the older views, and experience of some celebrated obstetricians, which have in a great measure been proscribed, if not entirely forgotten, may be referred to, and claim some attention. Should they be instituted at any time, they may prove of benefit to both mother and child.

My paper I wish to be considered as simply a practical one, to illustrate the redressment of occipito-posterior positions of the child's head into face presentations, in some instances, instead of producing flexion.

The views of the French school on the positions of the child's head, in relation to the superior strait, and the relative frequency of each of them, were in the ascendant, when Nagele wrote his essay. They were accepted and taught by many, if not nearly all of the prominent French and German authorities. It is true that Saxtorph, of Copenhagen, and especially Solayres de Renhac, of Montpelier, as well as Johnston, of Dublin, were the exceptions.

Nagele admitted that they had preceded him, as to the rotation of the child's head from a posterior to an anterior one. Respecting the frequency Nagele was decided, and imperative on that point, as well as that

the rotation and delivery of the child was effected almost always by nature anteriorly.

He insisted also that the occiput did not rotate into the hollow of the sacrum, but maintained an oblique position in the pelvis, and if it did not move anteriorly, the child was delivered in that manner at its birth.

By some authorities these cases were termed face to pubes cases. This I think is an error, for it is not the face, but the upper and anterior part of the parietal bone, and part of the frontal bone at the pubes, face looking upwards. Sometimes it is the frontal bone at the pubes.

In other cases it is a true vertex presentation at the vulva, consequent on the extreme flexion.

Smellie, in 1744, recognized the movement of the head from a posterior to an anterior position. He however made the change, as he believed, by two fingers. He did not realize the frequency of this kind of cases, and that nature accomplished the rotation in nearly all of them.

John Clarke, of Dublin, 50 years after Smellie, stated that he had redressed 13 out of 14 cases by this method.

Our distinguished and justly celebrated Prof. W. P. Dewees, in reference to the occipito-posterior presentation, held "that no man was competent to practice obstetrics who could not detect, and change the position of a child's head from a posterior position to one anterior."

Prof. Henry Miller, one of the distinguished Presidents of this Association, clear and distinct in the enunciation of his practical views on this subject, informs us that he labored assiduously to promote the rotation of the child's head, and he concluded that he now allows nature to take her course in a considerable number of cases, and that it is accomplished as well without as with assistance.

The 17 cases which Nagele met with when the head disengaged posteriorly as face to pubes, were owing, as he says, to exceptional circumstances, such as amplitude of the pelvis, laceration of the perinæum, or flexibility and smallness of the child's head.

After the appearance of Nagele's essay, the profession investigated the subject anew. Among other prominent obstetricians, Dubois and Simpson from their investigations and experience, coincided with Nagele, as to the frequency of the presentation, the manner of the rotation, the obliquity of the child's head in the pelvis, and the delivery of it in the same position.

Other able, conscientious and experienced observers differed materially from the views and opinions I have referred to. They held that the fourth position instead of being so very rare and unusual, was decidedly more frequent than Nagele had reported.

Capuron entertained the very opposite view, and announced "that the posterior part of the child's head, when posterior was never delivered by rotation, but that it was always born as a face to pubes case." Guillemot was firm in the conviction "that the occipito-posterior cases were delivered as true face cases more frequently than when the occiput was moved round anteriorly."

Face cases Nagele considered were next in frequency to the occipito-posterior with the chin always anterior. He says, "he has never seen a case with the chin posterior. That is where the forehead had turned itself forwards and upwards, and brought the face at the inferior strait or aperture of the pelvis into a diameter contrary to the usual one, anterior." Madam Lachapelle coincides with this opinion. The frequency of Guillemot's face cases, from an occipito-posterior, were 1 to 3—only one-third more than Nagele's held the second occipito-posterior position to the first position, which is 1 to 2.

It may appear singular that such diametrically opposite and discordant opinions on such a practical and important subject in midwifery could exist, as to the frequency of the position of the child's head, the mechanism by which it is delivered through the pelvic cavity, and at its birth.

Verily the old saying on this subject is fully corroborated, "who shall agree when doctors disagree."

The three very distinct and positive views and opinions I have referred to respecting the mechanism of the occipito-posterior positions of the child's head, by faithful and experienced obstetricians, of nature's handiwork during the process of labor at the inlet, the pelvic cavity, and its outlet, should merit some consideration, even at this day.

Setting aside at the outset the opinion of Capuron, which time and experience has not verified, "that the head of the child passes directly into the hollow of the sacrum, and is delivered as face to pubes."

Some of us, however, will agree with this view, and that the manner of delivery is more frequently recognized than Nagele believed.

In many instances they are as easy, quick and as natural as though they had been occipito-anterior cases.

But what shall we have to say respecting the views of Guillemot as to the frequency of the occipito-posterior presentations becoming face? The frequency of this class of position being converted into face, few of us may not coincide with, but as to the fact there can be no question.

I do not desire to be discursive on this subject, by entering into any special details. I am fully aware that our time is pressing. I realize, nevertheless, that it may be well for the consideration, as also illustrative of the subject, to refer as briefly and as succinctly as possible to the manner by which the rotation of the child's head is effected, and which in those cases is deemed an absolute necessity, the *sine qua non* of the labor, especially in those cases which become tedious, and may, and do sometimes, necessitate craniotomy.

Occipito-posterior presentations are generally redressed from the backward position of the pelvis to the anterior, by the natural rotatory or spinal action of the uterus.

This singular, curious, and wonderful movement of the uterus, by which the occiput of the child's head when posterior, is changed anteriorly and reversely, when the frontal bone is anterior as in face cases, is moved posterior, has never as yet been satisfactorily explained.

Various theories have been advanced, while some authorities embrace the opinion, and I may say quite a considerable number, that the inclined planes conduce materially and principally to the important change of rotation consequent on the head of the child when reaching that part of the pelvis—others, that when this resistance is met with, the *vis vertens* of the uterus becomes unnecessary. Others again consider, that there must be a harmony of action of the uterus, and the body to be moved, but that the fœtal spinal column is the direct line of communication to the occipito-atloid articulation, and that the head is thus directly impressed downwards, becomes flexed, and when meeting with the inclined planes, rotation ensues. Should there be, however, any defect at the superior strait, either by an equally faulty or the narrow conjugate pelvis, the spinal theory could not avail.

The delivery of the child's head is one of descent, through the parturient canal, whether it is synclitically or obliquely placed.

Flexion is considered as requisite in the anterior, as in the posterior presentations of the cranium. In some instances, however, the nature of the movement is changed, and the mechanism is reversed, the chin becomes extended, and the vertex is made a face presentation.

In the occipito-posterior cases, the rotation forwards is deemed of greater importance than the anterior to effect the delivery of the child. If the change is not made the rotation is believed to be at fault. The rotation, however, may not be at fault, because flexion has not taken place. Flexion is deemed as requisite therefore, and as important an element in the mechanism of the delivery of the child as rotation.

The movements of the child's head, whether at the superior strait, pelvic cavity, or the inferior strait, can be explained in another aspect, and that is by the uterine forces alone, acting on the vertex, or the antero-posterior direction of the child's head.

We recognize as a primary principle, and it must be admitted, that the result of the uterine contraction must, and should always coincide with the axis of the uterus. Movement and rotation can and only does occur on a fixed axis.

If the uterine forces pass through the axis solely, no rotation can be accomplished. If directed towards or through the posterior part of the head, flexion is the sequence.

If through the anterior or frontal part, the forehead will descend or lead, and if continued, a face presentation is the consequence.

Nagele considered rotation was effected principally by the uterine contractions. The head, he says, is moved by the pains forward; before it has made the rotation, it retreats, and it is then moved forward again, and this movement to and fro, continues till it has finally accomplished the quarter of a circle.

This description shows that the movement of a quarter of a circle does not depend on the inclined planes, but that the *vis vertens* is absolutely necessary and requisite.

In several instances I have noticed the rotation did not take place during the contraction, but as soon however, as the contraction was passing away, the head glided forwards during the relaxation and eventually became established in its new position anteriorly.

The experiments instituted by Dubois on the cadaver, with a child's head, and which are sometimes referred to, were an artificial physical movement to show how rotation was performed in the pelvic cavity. They could not in any way illustrate the natural spiral action of the living uterus. They were made to show, as was supposed by some, the influence of the inclined planes.

It is true they describe a mechanical fact, an artificial physical force, but they do not conduce to the truthfulness of nature's movements by the uterine contractions.

What explanation according to this view is rendered, or has been advanced in those cases of face presentations with the chin tending posteriorly, resting as it does on the ilio-pectineal circle, or even partly in the superior strait?

Without this rotatory or *vis vertens* action of the uterus, the child will have to be sacrificed. Rotation and flexion are not, moreover, the only important elements requisite for the safe delivery of the child.

Extension of the child's head backwards becomes a positive necessity in some cases, in lieu of them, independent of the size, form, mobility and position of the head in the pelvis to be translated, and the capacity, form, and the resistance of the canal to be traveled, either naturally or by artificial aid to become face. Some authorities moreover recognize the fact that there are instances of occipito-posterior presentation, instead of the chin approaching the chest to become flexed, departs from it, and the anterior fontanelle and forehead gradually become more apparent and tend to the centre of the excavation. These kind of cases, however, prove favorable in some instances and nature redresses them by flexion, for they are only temporary. Now, whether the primitive position of the child's head is directly transverse at the superior strait at the commencement of labor or not, the head will in the course of labor come to the oblique diameter.

Should the head be well flexed at the superior strait even while it is in the cervix uteri, the contractions regular and efficient, the head will pass through in this manner, and in a short time the head will be rotated round anteriorly, and the child is delivered as easy and as quicklyas in occipito-anterior cases. Should, however, flexion not have taken place, either in the cervix uteri, or in the pelvic cavity, we are likely to have a case of some difficulty, for the vertex is presenting, and rotation may not occur unless artificial aid is provided for either by flexion or extension—should it be a forehead presentation, the possibility is that we may have a face presentation, but if not, then it becomes a question whether it is not better to make it a face, instead of trying to produce flexion, or terminate the delivery by instrumental efforts.

Face cases are considered by some practitioners as more difficult and tedious to the mother, and especially unfortunate to the life of the child.

My own experience does not coincide with this view, but that they proceed usually without greater difficulty, and terminate quite as successfully, as occipito-anterior ones, for no unusual proportions of the pelvis are requisite.

This transmutation of the child's head into face, according to Guillemot, even while in the pelvic cavity, occurs after this manner: "The occiput being arrested by some point in the excavation, instead of advancing along the perinæum toward the inferior strait, ascends in the curvature of the sacrum, by executing the movement of rotation backwards, and being at the same time thrown back upon the posterior part of the chest, while this is going on, the forehead and face descend behind the pubes, and pass downwards, and backwards, until the chin emerges under the arch, and the head, which is completely turned back, traverses the perineal strait, as in face presentations." Forehead presentations do not often enter the pelvis "*a plomb*," unless from some defect of the pelvis. When they do, they will then assume a position between the normal vertex and a face presentation.

Should this exist without becoming a face, or an occipito-posterior well flexed, in the translation of the head to the outlet, the forehead may present at the vulva, then the eyes, while the superior maxilla is fixed against the pubic arch, and the cranium sweeps over the perinæum, but the superior maxilla, the mouth, and the chin do not appear from beneath the pubic arch until after the whole cranium has been delivered.

This description of another way by which the child is born as a frontal case, instead of becoming face in the pelvic cavity, shows us that nature may and does deliver even these extreme cases, without much flexion occurring. The success of the delivery in this class of cases, I believe, is consequent on the perinæum being a short and yielding one, the head not much elongated and a small-sized occiput. Should, however, the perinæum become very much extended, it would be utterly impossible for the head to escape over the perinæum, as it has become a true vertex case. The frontal bone is then directly under and against the pubes, and the labor will have to be terminated by artificial means in some way. An illustration of which I will present, with some others of a different nature occurring in the pelvic cavity, and at the superior strait.

There are some patients who in nearly all their confinements have occipito-posterior positions. One of my families had four labors in succession of occipito-posterior positions. They all terminated favorably in the anterior position except one, which was instrumental. These children weighed 10 to 12 lbs. Pelvis ample. The shoulders measured respectively 20 to 22 inches in three of them. The last birth, a year ago, was a girl, the smallest of all; the delivery in that instance was only one hour, being a frontal presentation. In three of these cases, the head was in the left oblique diameter of the pelvis.

In Mrs. K.'s first labor the left oblique existed, and she was obliged to be delivered instrumentally, after traction at intervals of nearly two hours. Child living. Dr. Lusk assisting. It was thought at the time, that there was some slight diminution of the pelvis. Vertex presentation. Child weighed 7 lbs.

In Mrs. K.'s second labor, last year, the posterior position prevailed, but this time it was the right oblique diameter. Immediately after the membranes ruptured, after four hours' easy labor, the child was delivered in fifteen minutes, occiput anteriorly; child weighed 7 lbs., Dr. Wells, of New Rochelle, being present till I arrived.

Swayne, of Bristol, England, from his investigations as to the frequency of the different positions of the child's head at the superior strait, affirmed that the left occipito-posterior positions were far more frequent than the right. My own experience coincides with this view and in other cases which have occurred to me, the last three years, they were nearly all in the left.

McDonald, in the October number, 1874, Edinburgh *Journal*, says one of his patients in three labors had occipito-posterior, and one face, all easy labors—another three cases and one brow. In a third, out of four confinements, there were three occipito-posterior and one face. Out of the 10 cases there were two face and one brow, which is not very far from being a true face, that is nearly one-third face presentations, four occipito-posterior cases becoming face.

Guillemot informs us "that we should not depart from the truth, by announcing that in every three occipito-posterior positions, one of them would give rise to a face presentation.

Causes.—The disproportionate large size of the child's head is supposed to be the principal cause in the general run of these cases, in its relation to the pelvis. We should not be unmindful that the diminution of the measurements of the pelvis, in all its diameters even of a quarter of an inch, conduces, as I believe, frequently as a barrier to the delivery. Large shoulders, although the head may be small, become a decided source of difficulty. This cause is but very cursorily alluded to in the obstetrical works in these kinds of positions.

In the cases of Mrs. S. and Mrs. G., which I will refer to, it was the chief cause, and although the forceps were used, and efficient, after careful traction was made, it became necessary to conduct the labor by other means.

It was formerly believed prior to Gerdy's exposition of the mechanism of the shoulders during labor, that the trunk of the child did not partake in the movements of rotation after the head was born, and that there was consequently a certain degree of torsion of the neck, and that the twist would remain so, until the shoulders changed their position, when the neck becomes untwisted. The accepted views of Gerdy, who considered and demonstrated that the body of the child must participate in the movement of the head, whether the head was in or out of the pelvis, and that the shoulders from being "transverse became oblique." I think we will coincide with this physiological fact at this day, and yet it is too frequently overlooked, where artificial aid is required. Some children may have been innocently sacrificed through forgetfulness of this important physiological fact.

In some of these difficult cases, therefore, it is an absolute necessity before the further descent of the head to the inferior strait, or should it have reached the perinæum, or even dilating the vulva, that the shoulders should have entered in part, or wholly the superior strait before rotation could or would ensue.

It is principally those positions, I believe, which Caseaux and Von Helly have incidentally referred to, where the occiput has only a few lines to ride over the perinæum in order to escape from the anterior perineal commissure, and when, under the influence of a new pain, the head rotates briskly, the occiput gains the front, the forehead rolls into the perineal concavity, and the labor is terminated immediately.

I have watched a few of this class for some time, presuming they would be born as face to pubes cases. I have, however, been agreeably disappointed to realize the change so quickly made to an occipito-anterior one.

In these positions no other or better explanation can be rendered, I conceive, than that of the uterine forces, the shoulders have just engaged in the superior strait, or if they were engaged, the *vis vertens* action of the uterus has accomplished the shoulder movement or rotation, and as a natural sequence, the child is delivered occiput forwards and not as face to pubes.

Various authorities could be cited who consider that face cases are as easy and quick in the delivery of the child as in any occipito-anterior presentation. Difficulties do and will occur in all cranial presentations. The general opinion of the profession is far more favorable than unfavorable respecting this occurrence.

Collins informs us, and others join with him, that the delivery is so rapid in some instances that they are not noticed. I have seen two instances where they were delivered in two pains, and one transversely in a single pain. As a general rule, also, he, as well as others, hold "that there is an impropriety for rash interference in these cases, as nature accomplishes them very easily."

Treatment.—Instrumental and manual aid are the requirements which become necessary to terminate the labor in this class of cases should nature not be competent to finish it. Some practitioners give the choice to the lever in preference to the forceps.

The English resort to it more than we do in this country. Prof. H. L. Hodge, however, was a strong advocate for its employment, and there are many illustrations exemplifying its application in his work, as well as the use of the fillet.

The forceps claim very justly more consideration, and are generally adopted. The long curved most usually. The long straight I prefer under certain circumstances. The short curved occasionally, if the head is low down, may be very serviceable.

While some will advise after the application of the forceps, that the head should be slowly rotated during the process of extraction so as to bring the occiput anteriorly, whether it is at the superior strait or in the cavity or inferior strait, others reject any effort at rotation, even while the head has descended to the inferior strait, and rest simply and solely on that alone, allowing nature at this stage of the labor to effect the rotation, if possible, and the delivery to take place.

McDonald informs us that in all his twenty cases rotation took place, and that it was purely the result of direct traction efforts, believing that traction alone is sufficient to eventually deliver the patient—occiput anterior. I wish I could entertain as favorable a view, and had such fortunate results by rotation. It has not been my experience, for when the head has been brought down by the instruments, or come down naturally to rest on the perinæum, they have most generally been delivered as face to pubes, though, as I have stated before, the head has occasionally glided round even while it was *in extremis* on the vulva. I have always entertained a decided objection during traction to attempt rotation, unless nature gave evidence of aiding in accomplishing it.

There should be a perfect consonance of action existing with the uterine movement, and the body to be moved. Flexion taken place, the pelvis of natural standard measurement, and the shoulders, if the head of the child is low down, should have engaged in the upper strait, a requisite so important that if they have not, they will be a decided hindrance to the easy delivery by the forceps. Unless these requirements exist, any effort made to rotate at the same time traction is proceeding, serious injury to the child's head and neck will follow.

Should the child's head be oscillating in the pelvic cavity, even after traction by the forceps, then there could be no doubt that the shoulders were the cause of the delay if the pains are efficient; therefore there could not be any delivery of the child until that cause was overcome. It would be far better, under the circumstances, to lay aside the instruments, and address the further management of the case to entirely different procedures.

A distinguished authority is especially severe in his denunciation respecting rotation by the forceps. He says: "It is labor lost. It is a sin to attempt to promote this turn by twisting with the forceps."

I have never seen but two instances, after the forceps were applied and traction attempted, where rotation took place in the pelvic cavity. One of them was with my lamented colleague, Prof. G. T. Elliot. The rotation was so rapid, after slight traction, that the forceps and the head were rotated together. Fortunately, no unfavorable lesions or injury occurred to the soft structures of the patient. With all this, I have been informed by excellent practitioners that they have frequently accomplished it, and the instruments are easily removed.

Rotation of the child's head is not an isolated movement of itself. It is, and must be, consequent on the rotation of the shoulders at the same time by the uterine forces; and if they do not move with the forceps when the rotation is attempted, the child may be seriously injured as well as the mother. We do not take the blame to ourselves, but attribute the unfortunate event to a tedious and difficult labor.

I have preferred, as the instruments are an obstruction sometimes to the rotation being effected of the child's head, after the head has made some descent,

to remove them, and after awhile to reapply them, when realizing that considerable force and power would seem to be required. On their reapplication, the head having undergone some change for the better, either by further descent or flexion, I have then been enabled to accomplish the delivery with the slightest assistance lower down, and then removed them and allowed nature to complete the delivery, either as a face to pubes or possibly by rotation anteriorly.

When the forceps have failed in some instances, whether at the superior strait, pelvic cavity, or inferior strait or vulva, manual aid becomes an important and essential substitute, and an absolute necessity and benefit to conduct the labor to a more favorable issue, and it may be to save the child, particularly in the equally faulty pelvis. The hand is the natural and essential means to help us, for several purposes.

1st. To flex the head, which is the usual and generally adopted method, and to move the head anteriorly.

2nd. To produce extension of the child's head, and to make it a face presentation. The use of the hand has been advocated by several obstetricians of high repute. It has been severely criticised by some, bitterly denounced by others, resorted to by others for awhile, and rejected by them again. The chief object, as a general rule, has been either by the hand or two fingers to produce flexion, in a great variety of the irregular presentations of the cranium and face cases, considering that that important element in the mechanism of parturition is the most natural and correct course, and in this manner endeavoring to imitate nature according to her own way. All this is very true, and cannot be gainsaid. It is, nevertheless, not a law so imperatively impressed on the mind that its faithful execution has in all cases claimed its sustentation.

The presentation may be of such a nature that the attempt to flex the head proves a serious mistake, after having occupied much time, and careful manipulation by the hand or lever. By creating, however, extension of the child's head backwards, may occupy only a few minutes, and the labor may terminate in a shorter period of time.

The latest American authority, the lamented Dr. John S. Parry, of Philadelphia, was a decided advocate for "the use of the hand," to correct unfavorable or irregular positions or presentations of the head during labor.

1. To flex the head when partially extended in all its presentations.

2. To transfer the occipito-posterior into occipito-anterior positions.

3. To change presentations of the face with the chin behind into those of the vertex, with the occiput in front.

His paper was read before the Obstetrical Society of Philadelphia, Nov. 6, 1873, and published in the *American Journal of Obstetrics*, May, 1875.

Dr. Parry, at the close of his paper, remarks, "That the study of the literature of obstetrics, so far as the writer has been able to complete it, has failed to reveal any account of the manipulations which he had described."

In this aspect of the subject, Parry has certainly overlooked the method so faithfully executed and sustained for years by Smellie, nearly a century and a half since (1744).

Prof. G. S. Bedford, New York, in 1870, was a firm believer, and very clear in his language how to execute with the hand, in the class of cases referred to, and the object he desired to be attained.

Some of the ancient authorities also advised its use. * * * * Smellie was very much averse to perform version, if it could possibly be avoided. Whenever there was any irregularity in the position of the head, shoulder or face, he resorted to its performance by the hand.

In these cases Smellie writes (Chap. 4, Article Premature Labor): "Let the hand open the os externum slowly during a pain, and when the os internum is sufficiently dilated by the descent of the waters and membranes, let him introduce his hand into the uterus, behind the womb and membranes, and bring the cranium of the head down." Smellie not only introduced the hand to rectify the irregular positions of the head, but in some cases after he had rectified the position, "he applied one blade of the forceps to the head, while the hand was in the cavity of the pelvis, then withdrew it, and adjusted the other blade." I have frequently, he says, attempted to change the head in this manner, and have likewise when the forehead was towards the groin aside of the pelvis moved it more backwards, and by this means the forceps could be applied. Sometimes the hand would fail and the head would return to its former position. Bedford, page 198, midwifery, footnote, writes:

"In order to correct the mal-position, it will be necessary to introduce the hand into the vagina, pass it up to the superior strait, and quietly place the finger on the side of the head, the other hand steadying the uterus through the abdomen. The hand thus placed at the superior strait will cautiously elevate the head, and at the same time incline the vertex downwards, thus converting the position into the ordinary one of the vertex." This method he also applied to the moving the head round from an occipito-posterior to an anterior one.

Smellie admits that sometimes the head was so large and slippery that he could not obtain firm hold on it.

Many of us will coincide with this experience. * * There are instances where the hand alone internally cannot fulfill the mission it was intended in effecting the rotation of the child's head, and the body at the same time, unless it is assisted or aided by external manipulation in moving the shoulders with the head, illustrating how necessary and important it is that the shoulder movement should occur, or else the case may prove an unfortunate one. This double manœuvre or manipulation, the external in combination with the internal, going hand in hand with each other, is not dwelt upon by obstetric authorities as much as it might be. Except *en passant.*

As one of the illustrations of the double movement or the combined external with the internal, the following is referred to:

Case 1. Left occipito-posterior presentation, failure of forceps, and the hand internally to effect rotation; external with internal manual movement; forceps; child living; weight 9 pounds.

Mrs. U. S. G., primipara. Sept. 21, 1881, called at 3 A. M.; everything progressing favorably; head occupying the left occipito-posterior position; os uteri amply dilated. 6. A. M., head translated midway into the cavity of the pelvis; no change for two hours; vertex presentation; no flexion; head not decidedly arrested in the pelvis; easily movable. Dr. F. A. Castle was requested to assist me, and give the anæsthetic. 9 A. M., forceps applied, the head appeared to descend, while traction was made; forceps removed; no advance or descent apparent; a second trial for 20 minutes; no further success appeared possible unless very strong traction was attempted. There seemed to be no prospect of delivery by the instruments.

The hand was then introduced into the vagina, and the head during the cessation of pain was grasped, and slightly moved round, while Dr. Castle aided in moving the left shoulder more anteriorly. The head was retained in position in the pelvis, while the shoulders were gently and slowly changed at the same time. By this double manipulation, in a few minutes, the head was completely changed anteriorly. Forceps were then applied, and the delivery was over shortly afterward; child living; weighing 9 pounds; cause supposed lessening of all the diameters of the pelvis, and a well-developed child.

Case 2. Frontal presentation; left oblique diameter; natural conversion into a face presentation; quick delivery; child living.

In 1855, while visiting at Bellevue Hospital in April, I was called by my house physician to see a woman who had been in labor for several hours. Primipara, aged 22, healthy appearance. On examination vertex on the left oblique diameter; anterior fontanelle could be defined; the left sacro-iliac synchondrosis space amply filled with the posterior part of the head; right foramen ovale space less occupied, and the finger could be moved freely over the front part of the head; the pains were regular and efficient. In half an hour the frontal bone was recognized dipping into the excavation. Shortly afterwards a face presentation was apparent. In half an hour the labor had terminated, child living and of usual size, as a face case.

This was the first time I had ever witnessed an occipito-posterior presentation become a face presentation. The delivery was easy; I had expected to have a tedious case of labor, and I was most agreeably disappointed at the favorable termination. It was a valuable practical experience at that time that further study and obstetrical observation has verified, that nature does so perfectly and so well accomplish her work in some difficult labors, when we little expect it.

It illustrated how correct the views and opinions of Guillemot were, and that there is a truthfulness respecting them which has been overlooked, in some difficult cases, and which if not rectified, may have possibly proved unfavorable by other measures if they had been adopted.

Case 3. Left occipito-posterior presentation; vertex at the superior strait; forceps failure; conversion into face; forceps delivery; child living.

During the spring of 1866, while visiting the Bellevue Hospital in company with a few medical brethren from the country, my attention was directed to a case of labor by the attending house physician. It proved to be an occipito-posterior position of the child's head on the left side, cervix amply dilated, vertex presentation. The posterior part of the head could not be reached, anterior easily recognized. The head had occupied this position for two or three hours. The forceps were used, traction for half an hour and then relinquished, even after decided efforts had been tried no progress was made. On the contrary, instead of any flexion, after the removal of the instruments the frontal bone was distinctly leading into the centre of the pelvic cavity. Recognizing the fact that nothing was to be gained by the reapplication of the forceps unless either flexion or extension was effected, I thought it would be better and more easy and simple to convert the frontal position into a face during the intermission of the contractions and retained there till after the contraction had ceased.

In the course of 15 minutes the face was well engaged in the pelvis, and slowly descending, the forceps were then applied, and in a short time the child was delivered living. This case has been introduced before in another published essay.

Case 4. Left occipito-posterior presentation, vertex with the head well flexed. Forceps failure; vertex presentation at the vulva; manual conversion into a face by external manipulation on the perinæum; easy delivery; child living; weight, 9½ pounds.

Mrs. P. L., primipara, aged 22. Labor commenced March 10, 1882. I saw her with slight and irregular pains at 8 P. M. At 6 A. M. os uteri the size of half a dollar; labor progressing naturally; soft structures in excellent condition; head presentation, and believed to be an occipito-posterior presentation; pelvis appeared to be well formed. 8 A. M., head well flexed; os uteri two-thirds opened; occipito-posterior position well defined; membranes intact; during a pain the liquor amnii escaped, and the head passed through the cervix in that condition. 9 A. M., very little descent. 10:30 A. M., head has descended further down. I was in hopes that the labor would terminate very soon. 12 o'clock, no improvement.

Dr. Castle was sent for, and gave the anæsthetic; forceps applied; head brought to the inferior strait. The delivery required considerable traction. The instruments were then removed. Head slowly progressing, and well flexed, resting on the perinæum, with forehead against the internal part of the pubes; head entirely out of the osseous structures.

The perinæum, anterior and posterior, presented an extension from the coccyx to the fourchette, a measurement of 8½ to 9 inches, the width in keeping with the length. The fourchette was on a line with the lower part of the pubic arch. The appearance of expansion of the perinæum was certainly very for-

midable. The child's head seemed to be literally capped by the perinæum, very thin and tense. It looked as if the perinæum would be ruptured near the anus. Surgical anæsthesia produced. It was evident to Dr. Castle and myself that it was utterly impossible to try the forceps, owing to the excessive elongation of the perinæum caused by the extreme flexion of the head. The anterior fontanelle could be felt through the thin perinæum, an inch below the fourchette. Now, either nature had to accomplish the delivery by rotation, as it had in some of the cases I have referred to by waiting longer, or the attempt made to try and make it a face presentation.

During an interval of pain two fingers were placed on the posterior perinæum, just below the anus, when an effort was made to extend the head backward, performing the same evolution in the pelvis that the head does when it rides over the perinæum externally. The purchase obtained against the perinæum was retained during the contraction. After a few pains it was apparent the head was undergoing a marked change of rotation backwards. In a short time the eyebrows were felt, and on opening the vulva, the nose was recognized, and finally the chin escaped, and rolled under and over the pubic arch, and the child safely delivered as a face presentation; weight 9 pounds. There was not the slightest rent of the fourchette or perinæum.

No case could present a more clear illustration of the views of Guillemot respecting face presentations occurring from an occipito-posterior position, and to show how easy they may be converted into face artificially. Rectification by the two fingers on the frontal bone would have been impossible, owing to the extreme flexion. The marked extension of the perinæum precluded the use of the lever.

In contrast with manual aid in this and other cases being converted into face, and the application of the lever or forceps, and the time occupied, I would refer to Hodge, page 318, plate 23, figure 120, and to Woodale West's plates, in his essay on cranial presentations. I have no doubt that many cases of occipito-posterior presentations in the early part of the labor become face, and which nature redresses for the safe delivery of the mother and child, obeying in those cases the law, that when there is any active resistance, the head passes from that position, and assumes another, where there is more room and liberty by change of position as well as by flexion or extension.

Woodale West in his monograph on cranial presentations records an important case of this nature, although the flexion was by no means so great as some. As he was rebuked by his father for his officiousness in the management of the case, I will refer to it.

CASE 55, 1835. After severe pains for several hours, finally the orbit was at the pubes. I pulled down the head, and converted it into one of the face.

The labor was over in a few seconds.

West remarks: "I have often thought I was foolishly bold, being so young a man in practice. I should not now venture on such a plan. I would rather push the face back into the hollow of the sacrum. My father, who was a practitioner, when I had related to him the circumstance, told me never to do so again."

A case previous to this occurred to West, which nature accomplished by making it a face. It was after the head had rested sometime with the nose at the symphysis pubis, the face itself came down, until the chin passed under the pubes, after which the labor was speedily over as a face presentation.

Other cases might be referred to.

On the contrary Caseaux informs us that he has seen the superciliary ridge just below the symphysis, and in another case he saw the eyelids, and these cases were delivered by rotation, the occiput passing over the perinæum. Several authorities among the more recent publications, tell us that the occipito-posterior presentations may possibly become face.

I am aware of no authority who avowedly advises the conversion of occipito-posterior presentations into face, instead of producing flexion, whether the head is at the superior strait, pelvic cavity, inferior strait or vulva in preference to flexion. It cannot, nevertheless, be called an innovation, for nature has instructed us, and we are only to imitate her teaching. The contour of the child's head, particularly the occipital part, and its size no doubt creates an advantage or disadvantage as to the prompt and easy delivery. Sometimes it may be elongated, and in other instances round and small, and the flexion in excess. Cases of brow and frontal presentation have by nature been converted into face.

In forehead presentation the prognosis is considered by some German authorities as very bad for the child. (No mention has been made specially to change this irregularity into a face, except in a cursory manner). The disproportion between the head and the pelvis by the long diameter of the child's head, and the duration of the labor, render in these cases the prognosis as equally unfavorable for the mother. If the forehead presents when the os uteri is sufficiently open, Schroeder advises, as well as others, to perform version. Hildebrandt insinuates that it is possible it might be converted into a face. In Massman's cases of forehead presentations out of 41 cases, 21 children were still-born.

Now what are the advantages or benefits arising from the manipulation and rectification of these occipito-posterior presentations, where the anterior part of the head is leading, and where there is only the slightest prospect of flexing the head, whether instrumentally or manually to make it an occipital presentation, as is usually done, than by converting it into a face presentation? Is the redressment unnecessary and more dangerous to the mother and child than by flexion. Why should this be the result? It is certainly more easy to accomplish the rotation by extension of the head backwards by the hand, or the two fingers on the frontal bone, than to attempt the rectification by flexion, when the occiput is farther back and looking upwards, and to make the rotation at the same time.

Extension may be performed in a few minutes. Flexion requires more time, and especially if instruments are used, with possible injury to the soft

structures of the mother. The argument that is adduced against converting these cases into a face, is equally as objectionable should flexion be attempted, for the fronto-occipital diameter prevails, as the head by either change will have to be rotated on the transverse axis of the child's head.

The form of the cranium and the face are nearly similar to each other. The obstetrical head is considered as entirely different from the anatomical, and the chin is the analogue to the occiput. The measurements of the different diameters are almost identical. When the head is extended the trachelo-bregmatic is half to three-quarters of an inch less, and when undergoing compression by the pelvic cavity may become still more so. The head differs but little when it is extended or flexed in its diameters. The fear and dread of face cases, is that the neck of the child may suffer from the extension should the labor be prolonged, and the congestion of the brain and face. I am not unmindful of the usually accepted view respecting the treatment of face cases.

Even at this day they are considered by some as being so unfavorable, that they resort to the redressment into occipital presentations in preference. The profession recognizes the correctness and truthfulness of Nagele's explanation respecting the frequency of occipito-posterior positions, and that they are as easily and as quickly, in the majority of cases, changed by nature into anterior ones.

With this view of the subject, when nature does not sustain the movement anteriorly of the child's head, they considered it was proper, legitimate and necessary they should attempt to correct the position by rotation by artificial means, whether by instruments or manually.

May I ask if it is not as correct, just as necessary, and judicious in the class of cases I have brought before you, to uphold the dictation of nature by redressing these presentations into a face, as by producing flexion, and which in many cases is so difficult, as various authorities have testified to from their own experience and efforts?

I fortify myself by the experience which nature has taught us, and from the writings of those authors I have referred to, as well as from my own practical experience after many years. The views and opinions I have presented may not coincide, but militate against the generally accepted doctrines and experience of the profession, that face cases are more unfavorable than the anterior or posterior cranial presentations, as 5 to 13.

Should this safe and prudent course of practice, as I firmly believe, be sustained in the class of occipito-posterior cases I have offered, and when the lever and the forceps have proved of no avail, craniotomy may have to assert her claim, unless the time is extended by trusting to nature, as we have seen in some particular instances, hoping that the head of the child may fortunately glide forward and terminate the labor, with, as I believe, faint prospect of success. It is only a "bird's eye view" I have presented on this important and practical subject. The time allowed for the reading of a paper is so limited, and very justly so, on such an occasion, that it necessarily precludes any very extended and critical exemplification on such an everyday occurrence as the management of occipito-posterior presentations.

USE OF CHLOROFORM IN LABOR.

BY JNO. HERBERT CLAIBORNE, M.A., M.D., OF VIRGINIA.

Read in the Section of Obstetrics and Diseases of Women, of American Medical Association, May, 1884.

Since the introduction of chloroform by Prof. Simpson, of Edinburgh, nearly forty years ago, the use of that anæsthetic has not proceeded *pari passu* in obstetrical practice, with its use in surgical or even in general practice. I think I am safe in stating that the majority of the profession resort to its use only in severe or complicated labor, or in cases calling for manual or for instrumental interference.

From a study and record of more than two hundred cases of labor, mostly consecutive, in private practice, coming under my observation within the last few years, and in all of which chloroform was administered, I have derived the following conclusions:

1. The process of labor in all of its stages may be facilitated by the use of chloroform.
2. The duration of labor in all of its stages may be shortened by the use of chloroform.
3. The pains of labor in all of its stages may be entirely yet safely obtunded by the use of chloroform.
4. The accidents of labor in all of its stages occur less frequently under the use of chloroform.

That these conclusions, at least in their entirety, do not embody the views of the teachers of the profession is apparent in the last edition of Playfair's Midwifery, 1880. On page 288 of that book we read: "A common error is the administration of chloroform to an extent which materially interferes with uterine contractions, and predisposes to subsequent post-partum hæmorrhage." Again, on page 290—"we do not think of chloroform until the os is fully dilated, the head descending, and the pains expulsive." In other words—"we do not thing of using chloroform until the second stage of labor has begun," and on page 291, "Bearing in mind the tendency (of chloroform) to produce uterine relaxation, more than ordinary precautions should be taken against post-partum hæmorrhage, in all cases in which it has been freely administered."

These views I entertained myself at one time—and the very conclusions which I have formulated for discussion in this paper I felt it my duty to combat in a public discussion before the Medical Society of Virginia some ten years ago.

I then believed that labor was oftener delayed than otherwise by the use of chloroform, and that the danger of post-partum hæmorrhage was always greater after the administration of that anæsthetic. And I was upheld and endorsed by more than one of the eminent medical men present on that occasion.

I now desire to confess and recant the error which I then held and promulgated. I came into practice just when the God-given boon had been first used and commended to the world by Simpson. I heard it denounced by a distinguished and revered preceptor as dangerous, cruel, and a criminal contravention of the Divine curse: "In sorrow shalt thou bring forth children." (Genesis iii, 13.) And though I used it at as early a date as any of my compeers, I used it for a time only in bad cases, and I used it hesitatingly —and as it were under protest—accepting it as an evil, but of less magnitude than the fearful complications of labor which called for its relaxing and obtunding effects. Since then I have learned to accept it as a boon—a benefaction beyond all computation, and now I believe that the conditions and circumstances should be very rare and very peculiar which would justify a practitioner in withholding its blessing from a woman in the agony of childbirth. Nothing gives me so much pleasure as the promise of that Lethe to the expectant mother when the fearful hour draws nigh, except the fulfilment of that promise, and her grateful expression of returning consciousness— "Is it indeed all over, and is my baby born?"

I cannot recall any accident which was the result of the use of chloroform in any case of labor in my own practice, nor do I remember to have seen recorded any such case in the practice of others, nor any fatal case of labor in which the untoward result was attributed to the use of that anæsthetic.

I regret that I have not a complete record of my own cases from the commencement of its use, which would now number many hundreds.

But several practical questions arise in discussing the propositions that I have submitted—and amongst them:

1. Should chloroform be administered in *every* case of labor? I reply, no. There are some cases of labor in which the pain is insignificant; some in which there is no pain. I have patients in my clientale who, in repeated labors have assured me that the process in no stage was painful; that the sensation amounted to nothing more than an operation from the bowels when somewhat constipated. In others the pain is so slight as to require no alleviation, and the process of delivery so prompt as to call for no interference. Such exceptionally happy cases need no further blessing. But such cases are indeed exceptional. As a rule, the act of parturition may be fitly termed, as it has been ever termed, an *agony*, from the Greek, a struggle as if in the pangs of death. Such pain appeals to every human heart for help, and every human instinct compels us to render it. Not only so, but the rational requirements of sound practice demand that we arrest at once this fearful suffering, this terrible irritation of the terminal nerves of that tender organ, which in the woman is the throne of the sympathies. *Ubi irritatio—ibi fluxus;* and what fatal changes wait upon those processes so easily and so rapidly converted from the physiological into the pathological! Dr. Dickson, of Charleston, used to say that he always tried to kill pain wherever he found it, as he always tried to kill a snake. Both are the enemies of the human race, hereditary, traditional, implacable and mortal. Kill the pain and cure the patient. And what will kill pain so quickly, so thoroughly, and so efficiently as chloroform? Not only so, but in an instant you transport the patient from the throes of martyrdom into the ecstasies of the blest.

But secondly. Another practical question arises. At what time or at what stage of ordinary uncomplicated labor should we commence the exhibition of chloroform? Certainly not until labor has surely and unequivocally set in—not until the lips of the os uteri have thinned out, and the process of dilation unquestionably begun—not for those dragging, nagging pains—aggravating and distressing but not genuinely the pains of labor, only the precursor of those pains, and partaking of the nature of neuralgia of the sacral plexus and its diversified connections. Chloroform would nullify these pains too—as it does all other pain when pushed to its limits. But we do not propose to administer chloroform for mere neuralgia. For these pains we rely upon bromide of soda or potash, and the hydrate of chloral, twenty grains of each every hour until a drachm of each is taken, if so much be necessary to secure relief; the former agent for its especial action upon the spinal centres, and the basic ganglia; the latter for its effect upon the higher centres of cerebral origin, a combination of rare power and one which has rarely disappointed me. Chloroform administered under these circumstances, doubtless does retard labor, and postpones all of its processes. But withheld until the process of dilatation has clearly begun—or better, until the circumference of the os has attained to the size of a half dollar, and the use of the anæsthetic will not only facilitate, but will hasten the act of opening to completion. More than that, it will obtund and render endurable those trying pains that inaugurate and accompany the first stage of labor, and which many women declare to be more harrowing than the agony and throes of the second stage.

And in the first stage it is not always, indeed it is not often necessary to push the anæsthetic to the induction of unconsciousness. Administered even in very small quantities, it assuages these pains to an extent which enables a woman to bear them with patience. In this stage it is best that it should be given intermittently —be given as the pain comes on and be taken away as the pain goes off.

Should the os, however, prove especially stubborn and refuse to dilate, then chloroform to the extent of inducing complete anæsthesia, will often relieve the difficulty by bringing on relaxation of the circular fibres. It will generally do so, and thus may often obviate the necessity of antimony or venesection, even in the plethoric and full-blooded. It will very rarely fail to do so, if preceded by a full dose of chloral and bromide of potash.

But now, when the first stage has terminated, when the os is fully dilated, and the head of the fœtus commences its descent through the pelvic passage, a condition of things which the experienced accoucheur can often recognize without vaginal examination, by the subjective symptoms, by a change in the character of the complaint made by the patient, or by a sort

of a lull in the storm—the woman realizes as a rule, a temporary relief, and often falls into a short sleep—very short it may be, but very refreshing. In this state, what shall we do with the chloroform? may be asked as a third question.

Take it away, of course. Dispense with the anæsthetic for a shorter or longer time, according to the urgency of the recurring pains. Some women, in whom the expulsive pains of the second stage are merely expulsive efforts, and no pains, and who do not dread this stage of labor at all, call for the chloroform no more. In such cases no anæsthetic is necessary, and if not necessary, its administration, of course, is not judicious. But unfortunately for humanity, these painless cases of labor are not often seen in the obstetric chamber. Generally, when the hard head commences its downward career through the pelvic arc, pushing along, crushing along against the irritated nerve plexus lining that sensitive channel, and caught by a resistant perinæum is hurled back time after time, then the true agony is begotten, which calls for human sympathy, and demands human help. What heart so hard as to withhold chloroform in that hour of bitterness and despair! And in that last fearful pain, invoked by a long-suffering perinæum, just as its last attenuated fibres are stubbornly yielding to the force of those final throes, which threaten in their violence, the very dissolution of nature, who can stand idly and unmoved, and yet know that he holds the remedy for it all in his own hand? Not I. Nor am I satisfied now to assuage the suffering. I abolish it. Chloroform then, as the bleeders say, *ad deliquium animi*. I give it to full unconsciousness. Nor have I ever seen it arrest or delay the labor in this event. I have often thought it gave full play to, if it did not help the expulsive efforts at the last. At the same time it relaxes the perineal tissues, and diminishes the danger of rupture. I have never, except on one occasion, seen a torn perinæum under the full influence of chloroform, and that occurred from the careless handling of a pair of long forceps.

I can only account for this fact of muscular relaxation and tissue relaxation under the use of chloroform, and yet persistent and increased uterine action, on the ground that the diminished sensitiveness of animal function more readily permits if it does not increase organic or ganglionic action.

I have had a patient say to me more than once, "Doctor, give me enough chloroform to *prevent* my *feeling* the *pain*, and I can bear down better. I can't help bearing down." What does that mean, and what does that teach?

The most striking illustration and the most positive proof which I ever had of this fact, I derived from the case of a lady whom I once attended in a condition of intoxication. She had had at two previous labors most painful and tedious delivery—under use of instruments—and some wise person had told her that if she "would drink half a pint of the best whisky, just as her next labor begun, that she would not get drunk, and yet that she would not feel her pains!" I was called to her some 15 minutes after she had taken the whisky, and was told by the nurse what had occurred. She was even then too much under the influence of the potion to recognize me or to speak to me, and soon after passed into that semi-comatose state known as dead-drunk. An examination revealed the os dilating. I remained by her side for six hours, and during that period every stage and process of labor was consecutively and regularly developed and completed, and the child born alive and well! Yet, with the exception of uterine dilatation and contraction, and general muscular contraction attendant on the expulsive effort, there was no more manifestation of life in the woman than could be seen in the delivery of a manikin!

Not one sound or cry was made, nor was there the slightest facial expression of pain, or of any other emotion, during those six long hours, nor for six hours afterwards; nor when, after some difficulty, she was finally restored to consciousness, did she remember or could recall one single incident of her accouchement, except, that "on a friend's advice, she had drunk the liquor, after preparing her bed." I had attended this lady before, and I have attended her in several consecutive confinements, but I have never known her to have so safe and so unexceptionally a normal labor as on that occasion.

I do not, of course, intend by these remarks to endorse the use of the anæsthetic which she adopted, or to commend the use of any anæsthetic to the extent to which she carried it, but draw the logical and inevitable conclusion that *anæsthesia, even to the utter abolition of all signs of sensibility, may be safely induced, and that it does not necessarily arrest or retard the obstetric process. More than this—it does not prevent, but does, in my experience, incite firm uterine contraction, sometimes to an unpleasant extent in the third stage of labor, thereby diminishing the risk of post-partum hæmorrhage, by expelling uterine clots and facilitating uterine involution.* I mean by this statement to say that, in many cases in which I have used chloroform most freely, in the first and second stages of labor, the third stage was marked by unusual and persistent uterine action—the patient exclaiming in several instances: "Doctor, I cannot stop bearing down; I feel as if I should be compelled to force the womb through the pelvic 'passages.'"

And now arises another practical question: Should the use of chloroform be continued in the third stage of labor? As a rule, I answer, no, but in exceptional cases, yes. In puerperal convulsions, for instance, it is the sheet anchor of the accoucheur, and I know of no remedy which can replace it. Venesection in the plethoric and chloral hydrat. in all cases, are most valuable adjuvants in such complications; but, if confined to one sole remedy, I should select chloroform. Theoretically and practically it meets every indication. In cases of retained placenta with rigid closure of the os, and in cases of hour-glass contraction I can conceive of circumstances which might justify or demand its exhibition. I have no experience of its use in either case. Finally, that, in all cases of complicated labor, demanding manual or instrumental interference—turning, or the use of forceps, or perforation, anæsthesia is imperatively demanded, admits of no question. All are agreed, I presume, upon that subject.

It only remains to enquire what form of anæsthetic shall we adopt. In every instance in which I have used the word I have wished it to be understood that I meant *chloroform* pure and unmixed, such as that prepared and furnished the profession by Dr. Squibb, of Brooklyn. I think it vastly better than sulphuric ether in obstetric practice for the following reasons: 1. It requires a much smaller quantity of the agent to induce the same amount of anæsthesia. 2. It produces the same degree of anæsthesia in a much shorter time. 3. It acts with much more certainty. 4. It is not followed by the nausea and vomiting which are so frequently the results of the use of ether. 5. It does not act so often as a stimulant, inducing the peculiar intoxication or hysterical excitement which is common in the exhibition of ether.

I have been surprised, however, to read in a note by the American editor of Playfair's Midwifery (last edition, p. 291), that "In the United States chloroform is rarely used in obstetric practice, as compared with pure sulphuric ether, and anæsthesia is much less practiced than it was soon after its introduction." This certainly does not accord with my observation or experience. I cannot undertake to speak as he does for the whole "United States." But I am sure that when he speaks for the geographical section of that country which I have the honor to represent, he speaks without the book. In general surgical practice we use less unmixed chloroform, preferring in many instances either the washed ether, or a mixture of that with chloroform and alcohol—something like the Vienna mixture; but we have not discarded the use of chloroform even in general practice by a large majority. In obstetric practice I do not know of one physician who substitutes chloroform by ether. I have occasionally used it, for the reason that it was not convenient to procure the chloroform and the ether was at hand; but I can see no especial advantage in the use of ether, but the marked disadvantages which I have enumerated. Besides, if, as the editor before referred to contends, inertia of the womb occasionally follows the use of chloroform, it must also follow the exhibition of ether likewise, (loc. cit., p. 292), and we are not the more apt therefore to have post-partum hæmorrhage after the one than after the other. In addition, though under the one of chloroform in general surgical practice many a death has occurred, or rather been published, who has witnessed or recorded a death from the use of chloroform in obstetrical practice?

Now, whilst I am unwilling to array myself anywhere in this dicussion, anywhere except on the side of safety and conservatism, yet, before the annunciation of the American editor of Playfair's Midwifery be accepted as authority, I would urge that the profession at large earnestly and generally enquire into the truth of the propositions which I have had the honor to submit for the consideration of this learned body.

And if woman is to be robbed of this inestimable boon in her hour of agony, and the lying-in chamber is to be reconverted into the hall of torture, let me meet her there with the painful and sorrowful assurance that wiser men than I have decreed that she must submit to the irremediable and the inevitable.

30 Union St., April 25, 1884.

DISCUSSION.

Dr. Robertson, of South Carolina.—Mr. Chairman: I would like to ask Dr. Claiborne as to the effects of chloroform upon the fœtus. Does the fœtus ever suffer?

Dr. Claiborne.—I have never seen any instance, sir, in which it did.

Dr. Robertson.—I have seen it, undoubtedly.

Dr. McKenzie, of Illinois.—Mr. Chairman: My experience with the use of chloroform is in perfect accord with that paper. I would like to ask the author of that paper whether he has noticed the effect of chloroform in promoting the secretion of the parts, thereby converting what is termed a dry labor into a moist? That has been my experience.

Dr. Claiborne.—I think that is so; a softening of the parts occurs.

Dr. Jepson, of West Virginia.—Mr. Chairman: I hail from the western part of the State represented by the gentleman who has read the paper, and in an experience of 15 years in the new State, I have not found a case of an agony such as has been described so eloquently and pathetically by that gentleman. [Laughter.] On the contrary, every year I practice medicine I am the more impressed with the ease with which a large majority of my patients give birth to their children, and the very short time that is required for the obstetric physician to be present with his patient. It is a common thing to be called to attend a woman and to find upon arrival at her house, that the child has been born.

Now, sir, I commenced my career by the use of chloroform in labor, and I find that sometimes chloroform does induce hæmorrhage, and sometimes lessens the uterine contractions. I remember one case where the patient said to me, after inhaling chloroform for a very brief period: "Why, doctor, what is the matter? I cannot bear down;" and the experience was repeated every time the patient inhaled chloroform. And as you all observe, there is a certain class of cases where chloroform cannot be given because it interferes with the delivery.

From my brief experience I have found that there are cases where the use of chloroform is necessary, but I would limit its use to those cases where unusual agony is endured. I would say, in conclusion, "Let Nature do her perfect work." She is competent to do it, and my patients are perfectly willing that she shall do it. And before I sit down I would like to ask the gentleman who read the paper what was the condition of the child that was born as he has described?

Dr. Claiborne.—I stated that the child was born alive, and it lives yet.

Dr. H. C. Ghent, of Texas.—Mr. Chairman: I did not desire or intend, a few moments ago, to make any remarks upon this subject; but I cannot allow, sir, the time to pass without making a few remarks upon this, one of the most important subjects that

can engage the attention of the American Medical Association, or that of any other country.

I do not know, sir, what kind of pains the women in West Virginia have, but I want you all to know that the women in Texas suffer the same old pains during parturition!

Having been taught by Dr. Charles D. Meigs, of Philadelphia, not to use chloroform, for a number of years after I began the practice of obstetrics, I was afraid to have a bottle of it in the house. [Renewed laughter.] But, after many years of labor in this field, in which I had been the witness of so much pain and anguish during parturition, I at last ventured on the use of this anæsthetic in some of the most painful cases of childbirth. The early teachings of the illustrious Henry Miller, of Kentucky, had something to do with this test. I used chloroform, at first, gradually, advancing a step at a time, until now (and for the past fifteen years) I use it in *every case* of labor, whether natural or preternatural, unless the woman positively refuses to take it.

When the woman has passed the first stage of labor and says, "Doctor, can you do something for me?" I always thank God that, through the science of chemistry and the discovery of Sir James Y. Simpson, whose name is immortal, I am enabled to reply "Yes!" and to carry her safely through the agonies of her parturition! [Applause.]

Now, sir, a great deal has been said about post-partum hæmorrhage. I desire to say that the most frightful cases of this character I have ever had to contend with occurred in my practice before I began the use of chloroform, and that no serious or alarming case has ever taken place since I began its exhibition. My honest convictions are that, if chloroform were more frequently resorted to in this branch of practice, the gynæcologist would have much less work to do in this country, for there is no doubt in my mind but what chloroform does tend to prevent lacerations of the perinæum; and I therefore most heartily endorse nearly the whole of the valuable paper just read by the gentleman from *Old* Virginia! [Applause.]

Dr. Parsons, of Pennsylvania.—Mr. Chairman: I want to say that I agree with the gentleman from West Virginia, who is opposed to chloroform in parturition, except in instrumental cases, and in cases where there is a great deal of suffering. I infer from the remarks of the author that he is in the habit of using chloroform in every case of labor. I want to ask him whether, in a case where there was disease of the heart, he would first make an examination; whether, if he suspected there might be fatty degeneration of the walls of the heart, he would still use chloroform with impunity.

Dr. Claiborne.—The gentleman has misunderstood me. I said there were cases in which it should not be used.

Dr. Jepson.—Mr. Chairman: I wish to say another word, in order to disclaim the charge of abusing chloroform. On the contrary, I never attend a case of labor without a bottle of chloroform in my pocket for emergencies.

Dr. Van Annem, of Missouri.—Mr. Chairman: I would like to ask this question: Who is to administer the chloroform? I usually find in my management of cases of labor that about the time the final throes come on, when the head is about pressing on the perinæum, and the last agony is upon the woman, I have about all I can do to attend to the woman, and it is rare indeed when you have an assistant in the shape of a lady or the woman's husband that, at that critical period, is competent to administer chloroform.

The ground I take in the administration of chloroform in labor is this, and it is probably a question of policy on my part, you might say. The great public has not been educated up to the point that chloroform ought to be used in all cases of painful labor; and in those cases where you ought to administer chloroform, if there should be any exceptional trouble afterwards, some meddlesome person in the neighborhood will assign the whole trouble to the use of chloroform and blame the doctor! [Laughter.] I administer it carefully after labor has commenced, but I would not positively insist upon any woman taking it, but if asked, I would advise her to take it, provided there was nothing the matter with the heart. I have found that in every case the use of chloroform facilitated the labor. My experience is that no bad results have ever followed in any case the administration of chloroform in labor; and no woman has ever taken chloroform in my practice that did not desire to take it again.

Dr. Wathen, of Kentucky.—Mr. Chairman: If I understood the author correctly, he stated that chloroform, in his experience in a great many cases, has never retarded labor; that the woman "bore down" better, as he expressed it, and that it always prevents rupture of the perinæum. I am an advocate of the use of chloroform in labor, but I do not see how any one with an extensive experience in the use of chloroform, will say that labor is never retarded. I have had cases where the uterus had contracted well and regularly. After I gave chloroform, the uterus almost entirely ceased to contract. I stopped the chloroform, and the uterus again contracted well. If I began the use of chloroform again, the contraction ceased. And I am sure that cases of this sort have been met with in the practice of most obstetricians. I do not see how these patients can "bear down" better. Certainly, chloroform, when given to an extent that will prevent the pain of labor, partially paralyzes the contractile powers of the auxiliary forces.

That chloroform in labor tends to prevent lacerations of the perinæum cannot be disputed, but no one of extensive experience will deny that lacerations may and do occur, where the anæsthetic is judiciously and scientifically used.

Dr. Danford, of New Hampshire.—Mr. Chairman: I would like to ask of the gentleman who read the paper if, in anæmia of the brain, he would give chloroform, or to prevent congestion, in combination with the iodide of potassium.

Dr. Claiborne, in reply.—I am certainly very much obliged to the gentlemen who heard me so patiently,

and who have criticised me so leniently; and I am sorry if I should have been misunderstood in some of my remarks. Possibly I was, and as far as practicable, I will right myself now in a very few words.

I do not wish to be dictatorial or dogmatical. I am seeking for the truth, as I believe you all are, in the interest of that great humanity whom we represent. I was very anxious to appear before this body, and take the opinion I have taken to-day, because, as I have announced, I had ten or twelve years ago taken a different opinion, when my experience was less large and I had not used this anæsthetic to the extent I have now used it.

And, first addressing my remarks to the lady (Dr. Danford, of New Hampshire), who did me the honor to ask a question of me, I should say that the use of the iodide of potassium ——

Dr. Danford.—I thought you spoke of the bromide of potassium.

Dr. Claiborne.—Well, I understood you to ask me whether I would not use chloroform in combination with the iodide of potassium. However, I will say that I would prefer, in the case of cerebral anæmia, neither bromide of potassium nor chloral.

As to the question of the gentleman from Pennsylvania (Dr. Parsons), I would say, that where there is heart disease, valvular disease or excessive dilatation of the heart, or enlargement of the heart, of course in a man's professional practice he is apt to be apprised of those facts, and an intelligent practitioner will apprise himself of those facts before he administers chloroform.

As to the question of the gentleman from Missouri, (Dr. Van Annem), I might say that I generally have experienced nurses, and it is to their hands that I ordinarily give the administration of chloroform, but I should not hesitate in the final throes to administer it myself. I can do it with my right hand;—I might say here that, in the case of labor, my left hand never comes off the womb until the birth of the child.

And as to the question of the gentleman from Illinois (Dr. McKenzie), I will say that I have seen dry labor converted into moist by the use of chloroform.

Dr. Wilson, of New Jersey.—Mr. Chairman: I would like to ask the gentleman if he would follow the use of the bromide of chloral in the first stages of labor, with the use of chloroform, and, if so, if there is not danger of paralysis of the heart. I ask this question, because I have seen bad results;—where the bromide of chloral caused paralysis of the heart and immediate death. And I think, sir, that it is a dangerous thing to establish a custom of giving that deadly drug, bromide of chloral, and then to follow it by the use of chloroform. I think the profession cannot be too careful on that subject.

The Chairman here announcd that, in consequence of the lateness of the hour and the number of papers yet to be read, he was forced to close the discussion.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

Camphor Inhalations in Coryza.—Dr. G. E. Dobson writes to the *Lancet* advising the following: About a drachm of camphor, coarsely powdered, or shredded with a knife, is placed in an ordinary shaving jug, which is then filled with boiling water. The patient having made a paper cone (out of a sheet of brown paper or an old newspaper) large enough to surround his face by its wide extremity and the mouth of the jug by its narrow end, proceeds to respire freely, at each inhalation drawing the steam into his nostrils, and at each exhalation forcing it up against the outer surface of his nose and adjoining parts of the face. A twofold action is produced: the camphorated steam acts internally in a specific manner upon the whole extent of the mucous surfaces, and externally, produces profuse diaphoresis of the skin covering the nose and sides of the face, these acting as a derivative from the inflamed Schneiderian membrane. The jug should be surrounded by a woolen cloth in order to prevent the water cooling, or, better, if a tin shaving-can be used, a small spirit lamp or heated iron may be placed beneath it, so as to maintain the heat of the water and the vaporization of the camphor. The patient should continue his respirations (keeping the margins of the base of the paper cone closely applied round his face) from ten to twenty minutes, and this should be repeated three or four times in as many hours, till entire freedom from pain is experienced. Great relief is usually felt even after the first application, and three or four usually effect a cure.

Milk Diet in Gastric Ulcer. M. Debove has lately lifted up his voice against the common practice of putting patients with ulcer of the stomach upon an exclusively milk diet. He argues that the quantity of fluid required is so great that a dangerous dilatation of the stomach is produced, thereby leading to hæmorrhage, and cites one case of death so caused. His plan is to give about six drachms of beef powder with two and a half drachms of bicarbonate of sodium. This, he found, is passed directly into the intestine, undergoing no change, and causing no irritation in the stomach. In addition about a quart of milk with saccharated lime is allowed each day. M. Debove states that this mode of treatment has given him great satisfaction in a number of cases. —*Gazette des Hopitaux; Practitioner.*

On the Treatment of Phthisis Pulmonalis by the Mullein Plant.—We have already referred to Dr. Quinlan's views on this subject in the previous pages of Medical Progress, *vide* vol. 2, p. 234, Journal of the American Medical Association. Now we find that he has read a paper before the International Medical Congress, in which he gives cases and treats of the subject somewhat in *extenso*. It is published in the Dublin *Journal of Medical Science.*

From time immemorial the Irish peasantry have re-

garded this plant as an unfailing cure for consumption; and thus it is that an herb, which in England, France and Germany is a mere wild weed, is in Ireland carefully cultivated on a very large scale. It is in constant demand, it is advertised in all the journals, and, in fact, forms an article of ordinary commerce. There are five mulleins, all belonging to the natural order of *scrofulariaceæ;* but the one in question is the *Verbascum* Thapsus, or great mullein, which is known in France as the moténe bouillon blanc, and in Germany as the *kleinblumiges Wollkraut.* The best results are obtained with the green leaves, which can be procured during seven or eight months of the year; but excellent effects are produced by the dried leaves also.

The method employed by the Irish peasantry is to take 100 grammes of the fresh green leaves (or about 30 of the dried) and place them in rather more than one litre of fresh cow-milk. This is brought to a boil, and allowed to stand for 10 minutes. The hot fluid is then filtered, is slightly sweetened, and is drank while warm. This whole quantity is taken twice or, in some cases, three time a day. It has a soothing pectoral effect, and, after a little time, is much liked by the patient.

Dr. Quinlan has treated 127 cases with the mullein leaf solely, with one trifling exception. Previous to commencing treatment, each patient was carefully weighed, and this weighing was repeated every week, with great attention to uniformity of conditions as to time, clothing, meals, etc. The symptoms and physical signs of each patient were accurately noted, and the results tabulated. This has led to the following conclusions:

1.. In the early and pretubercular stage of pulmonary consumption mullein has a weight-increasing and curative power greater than that of cod-liver oil, and nearly equal to that of Russian koumiss. It has been experimentally proved that this is due to the mullein, inasmuch as the milk alone fails to accomplish the same results.

2. In cases in which tubercles are well established, or cavities exist, the mullein has a great power in relieving cough. In fact, such a patient taking it requires no cough mixture at all, and every practical physician will recognize the great boon which this power confers on the phthisical sufferers, whose stomachs are often hardly able to receive alimentary sustenance. Indeed, the mullein milk is looked on by them more as a food than as a medicine. In persons of very feeble digestion heaviness is often experienced after so much milk. This, however, can be completely relieved by allowing the boiled mullein milk to cool down to 50° C., and adding a teaspoonful of pancreatic fluid. It should then be left under cover for 10 minutes.

3. Phthisical diarrhœa is completely obviated by the mullein. This is, no doubt, aided by the milk, but also occurs when the mullein is prepared with water.

4. All the symptoms of pulmonary consumption can be combated by the mullein, except colliquative perspirations. Over them mullein had no influence, and the hypodermic injection of the atropia sulphate was used. This is the sole exception in the mullein treatment.

5. Mullein smoke applied directly to the respiratory passages has a great effect in relieving irritation and spasmodic coughs, and coughs in general. The dried leaves of the mullein are broken up fine, and are smoked in an ordinary pipe, either pure or mixed with a little tobacco to flavor them. Very elegant cigarettes are prepared for this purpose. These are of two kinds: (1) mullein, flavored with a little Turkish tobacco; (2) for those to whom tobacco is disagreeable, mullein, flavored with a little oil of cascarilla.

It is worthy of remark that very young mullein leaves have a dangerous resemblance to young foxglove—so much so that an experienced gardener has been known to put a young plant of the latter into a mullein bed. Full or even half-grown mullein and digitalis are not the least like each other. Dr. Ernest Knowling reports a case where belladonna leaves got accidentally mixed with mullein, and produced serious, but happily not fatal, results.

MEDICINE.

On the Action of a Secretion Obtained from the Medicinal Leech.—Prof. John B. Haycraft has given in the Proceedings of the Royal Society some very interesting results of his investigations into this subject. It has long been a difficult problem to solve in the study of the coagulation of the blood, as to why the blood stripped from the leech after his application to man in "leeching" should remain fluid, and why there should be a tendency to the oozing of liquid blood from leech bites. Dr. Haycraft acted upon the idea that probably the leech secretes some ferment-containing juice which antagonizes the blood ferment, thereby preventing coagulation within its body, and enough remaining around the edges of the wound to prevent the outflowing blood from clotting until the leech ferment is all washed away.

To decide this question, the gullets and buccal cavities of leeches were taken, cut in small pieces and placed in a salt solution, resulting in an extract of leech of a faint greenish-yellow tint and an alkaline reaction. This was found, when applied to freshly drawn blood, to prevent coagulation. The extract was then boiled, but its characteristics remained unchanged, showing that it was not a ferment? Its active principle is insoluble in chloroform, ether, benzole and alcohol, and could not be separated in a pure form.

The blood-coagulating ferment was then separated carefully from blood, and one part (*a*) treated with distilled water, the other part (*b*) with leech extract. On being added to hydrocele fluid *a* produced a satisfactory clot, *b* not producing coagulation. Hence the action of the leech extract is to destroy the blood-coagulating ferment.

Fresh blood mixed with leech extract and placed under the microscope showed that while coagulation was prevented, the corpuscles were not influenced, the red forming rouleaux as usual, and the white ex-

hibited the normal amœboid movements. Careful microscopical examination of the parts of the leech involved failed to show any glandular structure. The secretion is probably derived from the epithelial cells lining the sucker and buccal cavity; it may be that unicellular glands of the sucker share in its production.

The injection of this leech extract into the veins acts similarly to the injection of peptones in the non-coagulability of the blood, acting on dogs and rabbits alike. In the coagulation of milk it has no influence, but it hastens the coagulation of myosin, and probably when it causes loss of contractility in a muscle, it is due to this fact inducing rigor mortis, the essential phenomenon of which is clotting of the myosin.

A Fact in Hypnotism.—M. Beaunis, Professor of Physiology to the Faculty of Medicine at Nancy, records an extraordinary case under the above title. The patient was a girl aged 12½, and was suffering from her fifth attack of chorea. M. Beaunis had been informed by Professor Birnheim of the result of hypnotism in a similar case, and decided to have it tried. A Dr. Siébault was the agent to hypnotize the patient. The result was that as soon as the child was hypnotized all choreic movements ceased, and when asked to write, instead of meaningless scrawls, her writing was steady and legible. The seances were continued for some days, and the child was cured completely. M. Beaunis says the facts require no comment.—*Gaz. Med. de Paris, Edin. Med. Jour.*

Does Reflex Paralysis Occur?—Dr. C. J. Nixon has read a very interesting paper on this subject before the Academy of Medicine in Ireland (Dublin *Journal of Medical Science*), in which he claims the following:

1. That those cases of paralysis of the orbital nerves and of amaurosis following affections of the fifth nerve, which have been adduced as instances of reflex paralysis, arise either from an extension of neuritis from nerve to nerve, or are instances of coincident affections of different nerves.

2. That we cannot admit the occurrence of paraplegia in urinary disease as a result of spasm of the blood-vessels of the spinal cord.

3. That if reflex paralysis have any existence, it is a paralysis by inhibition.

4. That there is no necessity for the admission of such a phenomenon as reflex paraplegia, as the cases recorded as such belong to forms of either neuritis or myelitis. The fact that many such cases recover rapidly is no argument against this view. There is no reason why a process of rapid repair cannot take place in nervous as in other tissues.

5. That the three conditions of peripheral irritation which give rise to paraplegia of the lower extremities are diseases of urinary organs, dysentery, and certain affections of the womb.

6. That these conditions give rise to paraplegia in three different ways. (*a*) by an ascending neuritis which sets up a myelitis; (*b*) by extension of inflammation to the cord along the veins from the primary source of disease; (*c*) by the occurrence of a descending neuritis starting in the sacral plexus, and extending downwards along the sciatic nerves.

Ague in the Fœtus.—Dr. Rudolph Albrecht, Prosector to the Obuchoff Hospital, St. Petersburg, describes in the *St. Petersburger Medicinische Wochenschrift* (*British Medical Journal*) two cases of ague in the fœtus. Both were in the seventh month of uterine life; and in one case the mother had been seized 12 days, and in the other 38 days, before confinement, with high fever, rigors, and profuse perspiration, with intervals of defervescence lasting several days. In each case the spleen of the fœtus was enormously enlarged, and very hard and brittle. In the first case, a great number of motionless spirochætæ were found in the blood. The infection of the fœtus, and consequent development of one of the chief pathological features of ague, was thus evident; and the presence of the special organism made one case complete. Dr. Albrecht believed that the spirochæta might have passed in its perfect form through the placental vessels into the fœtal circulation, but that it more probably entered the fœtus as a spore. Careful comparison of the two cases led him to the conclusion that the ague first seized the mother after the usual five to eight days of incubation; and then, giving her the power to infect her unborn offspring, it thus passed to the fœtus, which also passed through a separate period of incubation.

SURGERY.

Extirpation of Goitre by Means of the Elastic Ligature.—Dr. S. Usiglio reports the case of a patient, aet. 56, who had enlargement of the thyroid body due to hyperplasia of the left lobe, in which the enlargement was removed by means of the elastic ligature. The part came away in five days and the patient recovered easily. Two months previously, in March, 1883, Dr. G. B. Masta had successfully employed the same means for the removal of a pedunculated tumor. De Vecchi and Castelleone have also reported cases. An incision is made into the skin, in which the ligature is placed, the wound being disinfected and the ligature tightened daily.—*Gazzetta degli Ospitali; Practitioner.*

Renal Syphilis.—Dr. Negell, in his inaugural thesis (*Journal of Cutaneous and Venereal Diseases*), gives an admirable resumé of this subject.

1. Syphilis in any of its stages, may affect the kidneys; the same is true of hereditary syphilis, in infantile or adult life.

2. Certain renal complications are precocious, others late. The first, only studied within the last few years, manifest themselves in the first months after infection with all the characteristics of the nephritis of the infectious fevers; when the *début* of the chancre dates back several months, the clinical history of the affection is similar to cases of glomerulo-nephritis which are seen in scarlatina, for example.

3. Syphilitic nephritides occurring in the second-

ary stage, are always grave accidents, nevertheless they are curable, not only in the acquired syphilis of adults, but also in the hereditary syphilis of childhood. Their gravity appears to bear a certain relation to the age of the syphilis, and the time which the patients have been subjected to specific treatment.

4. Albuminuria being the principal symptom in the examination of these renal accidents, we understand how specific nephritis may pass from view before the other secondary accidents of syphilis.

5. When œdema appears and is sufficiently marked to attract the attention of the patient and physician, another cause is generally assigned to it, so that syphilis is readily eliminated from the diagnosis.

6. These albuminuric patients being improved under the influence of specific treatment, and taking no further care of themselves after the secondary accidents have disappeared, the renal lesion may slowly pursue its course, and when later the patient comes under the care of the physician, it is more than probable that his suspicions will be directed to another cause than syphilis, especially since it so often happens that the patient declines to confess to a disease which he has every interest in concealing. It is necessary then, when a patient comes under the physician's care with all the symptoms of an acute or chronic nephritis, and the etiology generally adopted proves doubtful, to think of syphilis and institute specific treatment. If the patient bears any traces of syphilis (either upon the organs appreciable to view, or in the viscera, nervous centres, liver, etc.), these accidents only confirm the diagnosis of a syphilitic renal lesion.

7. Precocious syphilitic albuminuria is generally persistent and of quite long duration. There remains a question of extreme importance to be resolved: what will be the outcome, in a time more or less remote, of the secondary syphilitic nephritides considered as cured? The presumption is probable that a certain number of cases of Bright's disease may be the recurrence or later termination of this primary disease of the kidneys (precocious syphilitic nephritis).

8. Specific treatment gives the same results as in the other precocious accidents of syphilis. Milk diet should be regarded as a simple adjuvant but not recognized as a necessity.

9. Renal complications occurring in an advanced stage of syphilis (tertiary and quaternary accidents) exist, presenting sometimes the character of acute or chronic Bright's disease, sometimes the characters of amyloid degeneration; in the last case, he thinks with Wagner, and contrary to the opinion generally held, that the amyloid kidney is a consequence of syphilis, and not of a concomitant suppuration or of a mercurial or venereal cachexia, for cases occur in which there is no suppuration, and the patients, far from being cachectic, are on the contrary quite vigorous.

10. These specific renal alterations are more grave than those which appear in the first years of syphilis. Nevertheless they may be benefited by specific treatment, the sole condition being that the renal lesion be not too far advanced; for, as in the case of the nerve-centres, we cannot rebuild the tissues.

11. Gummata of the kidneys, although quite rare, exist; but no pathognomonic symptom reveals their presence during the life of the patient. It is probable that anti-syphilitic treatment would have the same results as in gumma of other viscera.

Cervical Hernia of the Lung.—Dr. Mariani reports the following case in the *Revista de Medicina y Cirurgia Practicas; Journal d'Accouchements*, of a man 45 years of age, lymphatic, tall, in good health. When at rest his neck looked natural; but when taking active exercise or coughing, a globular tumor presented itself at the right latero-inferior portion of the neck (supra-clavicular region) which increased in size with each profound inspiration; particularly in the paroxysms of coughing did it become longer and larger, extended toward the median line, and involved the opposite side until, after repeated efforts at coughing, the neck was swelled to the size of the head. After cessation of the provoking cause, the neck resumed its normal dimensions. This singular phenomenon commenced to show itself at the age of fourteen years.

Rapid Cure of Simple Chancre.—Dr. Barthelemy gives in *L'Union Medicale; Jour. de Med. de Paris*, the method employed by Hebra, of Vienna, and which consists in washing carefully the penis of the patient with warm water, oil and soap, so as to remove all traces of previous treatment, and such topical applications as might form caustic combinations with salicylic acid. Then the salicylic acid is applied so as to cover only the chancre and a very small peripheral zone, this is kept in place by a thin layer of wadding, and covered by a strip of adhesive plaster. The application is made once daily if suppuration is not very abundant, if it be, twice daily, morning and evening. By the third day an eschar is formed which is deep enough to destroy all the evidence of the ulceration; then the salicylic acid is stopped and a simple ointment, such as adeps prep., is used spread on linen. Ordinarily the eschar comes away in half a day, leaving behind a simple lesion deprived of all virulence and healing in two or three days.

OBSTETRICS AND GYNÆCOLOGY.

The Influence of Age on Pregnancy, Labor and Infants.—M. H. Courtade publishes an article on this subject in the *Archives de Tocologie*, which he sums up as follows:

Pregnancy.—1. Delay in the first conception often has for its cause a sort of paresis of the genital functions, as demonstrated by the tardy establishment of the menses, and by their irregularity.

2. Possibly the vices of conformation of the pelvis and of the vertebral column, most frequent in the older primiparæ, may be a cause of this delay, in the sense of constituting a material or moral obstacle to coitus.

3. Twins are frequent with the older primiparæ, and seem to increase in frequency with age.

4. Morbid complications occurring during pregnancy, which are either accidental or due to gestation, attain their maximum of frequency with the older primiparæ.

5. This is true particularly of renal affections and of simple œdema, dependent upon disturbances of the blood and circulation.

6. Eclampsia is more frequent in the older primiparæ.

7. Premature delivery is also more frequent.

Labor.—8. Labor is longer with the older primiparæ, and, with the exception of contracted pelves, is due to:

(*a*) The weakness of the uterine contractions.

(*b*) To rigidity of the soft parts.

(*c*) In a restricted number of cases to ankylosis of the coccyx.

9. The delay in the labor is carried through its three stages, but is principally apparent during the dilatation of the cervix.

10. Interference is frequently necessary from the causes mentioned, and more particularly from the frequency of pelvic contractions.

11. The mortality increases with age.

12. Maternal morbidity, whether it be purely puerperal or extraneous, is correspondingly increased.

13. In consequence of a want of elasticity of the soft parts, rupture of the perinæum is most frequent, and increases with age.

Children.—14. The influence of age upon the sex and weight of children is still problematical.

15. Vicious presentations are more common with advancing age.

16. The mortality of the children increases with age, from the frequent interference, the long duration of labor, the frequency of malpresentations, and the maternal morbidity.

WOUND OF THE ABDOMEN, UTERUS, PLACENTA AND FŒTUS AT TERM BY A PIECE OF GLASS—NATURAL DELIVERY—CURE.—Dr. Martinelti (*Annali di Ostetricia., Jour. d'Accouchements*) records the following case: Seamstress, 34 years of age, fourth pregnancy, good health, panniculus adiposus but little developed. Menstruated last, August 20, 1883. On May 19, 1884, while coming down stairs with a carafe of water, tripped on her dress and fell, breaking the carafe, by which she was cut and bled freely, which blood was mixed with a large quantity of water. On examination there was found to be a wound of the abdomen, through which several folds of the intestine escaped. While waiting for the doctor, those about her replaced the intestine. The doctor found a wound which commenced a finger's breadth from the umbilicus and extended for three centimetres towards the left anterior-superior spinous process of the ileum. Between the lips of the wound he found a portion of the greater omentum. There were no symptoms of visceral lesion; the uterus was deviated obliquely to the right, two finger breadths from the wound. The wound was carefully dressed and closed by three sutures. For the three following days there was a slight febrile movement, but nothing special, except that the uterus seemed to be a little smaller. On the fourth day there was no fever. On the fifth day (May 24, the 277th day of pregnancy) labor set in, vertex presentation. Labor and delivery regular and normal, except that there was but very little amniotic fluid. The infant presented in the right scapular region, a finger's breadth from the inferior angle of the scapula, a recent wound, which was about three centimetres long, having scarcely involved the derm. A similar wound was found on the border of the placenta. The lying-in was satisfactorily completed, but little fever or meteorism during the fifteen days.

Fifty days later Prof. Chiara examined the patient, and found, besides the cicatrix of the abdominal wall, traces of a circular parametritis, with an intense pain in the culs-de-sac of the vagina, particularly the right.

At the time of the accident the woman had on a linen gown that was very thin, a flannel petticoat, a cotton petticoat and a chemise.

THE TREATMENT OF LUPUS.—Schwimmer (*Wien. Med. Wochenschrift*, 1884, Nos. 20 to 22) strongly advocates the employment of pyrogallic acid and mercurial plaster for the treatment of lupus, and he gives a series of cases in which these remedies were followed by excellent results. The peculiarity of his plan is that the remedies are used in sequence, the action of one being supplemented by that of the other. He first applies vaseline to the diseased part till all crusts are removed, after which a 10 per cent. ointment of pyrogallic acid and vaseline is applied, the dressing being changed two or three times a day and continued for from four to eight days, according to the activity of the process and the effect produced. Vaseline is then again used for a few days until the irritant effect of the acid is moderated, and then the mercurial plaster is applied and worn for from ten to fourteen days, the plaster being changed two or three times a day if there is much discharge, otherwise only once a day. After two weeks, if any nodules are seen in the cicatrix, the same cyclus of treatment is repeated, beginning with the vaseline as before, but using the pyrogallic acid this time for only three or four days. Generally, the writer states, two courses will be enough to cure the disease, though in some cases a third may be required. The duration of the treatment by this method is said to be from three to four months.—*N. Y. Med. Jour.*

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, OCTOBER 11, 1884.

WE postpone our usual supply of editorial matter, for the purpose of giving place to the following full and interesting report of the first day's proceedings of the American Gynæcological Society, during its recent annual meeting in this city. An equally full report of the proceedings of the two remaining days of the meeting will be given under the proper head, in the next number of the JOURNAL:

AMERICAN GYNÆCOLOGICAL SOCIETY.

Ninth annual meeting, held at the Palmer House, Chicago, September 30 and October 1 and 2, 1884.

This meeting of one of the most exclusive and respected societies of this country, was interesting and profitable to those present, on account of the scientific and practical character of the papers presented, as well as by reason of the general and spirited debates. The attendance, both of the Fellows of the Society and of the physicians resident in Chicago, was only fair. The following is a list of the officers for the year 1883–84: President—Albert H. Smith, of Philadelphia; Vice-Presidents—James R. Chadwick, of Boston, and Samuel C. Busey, of Washington; Secretary—Frank P. Foster, of New York; Treasurer—Matthew D. Mann, of Buffalo; other members of the Council—T. Gaillard Thomas, of New York; Fordyce Barker, of New York; R. Stansbury Sutton, of Pittsburgh; Thaddeus A. Reamy, of Cincinnati.

The morning session of the first day began at 10 o'clock, President Smith in the chair. An appropriate address of welcome was given by Dr. Wm. H. Byford, in the course of which he spoke of the great loss which the Society had sustained in the death of its chief, Dr. Marion Sims. The regrets of absent Fellows were then received.

The first paper, Moot Points in Regard to Inversion of the Uterus, was presented by Dr. John C. Reeve, of Dayton, Ohio. The progress of knowledge of inversion has been slow, on account of the rarity of the occurrence of the accident, and also because many cases must have been unrecognized by ignorant midwives or unprofessional attendants. The etiology of the condition is now much clearer than formerly. It is not always due to an unskilful removal of the placenta, as was once supposed, but it is sometimes idiopathic. The object of the paper is to state certain facts not generally recognized. On account of the rarity of the accident it is legitimate to reason on the subject as well as to give the argument of cases.

The first question considered is, Can inversion occur independent of pregnancy, or of the presence of a polypus? It is, of course, generally due to these causes. It may be due to a tumor, as to a hydatid, one such case being on record. The question is, however, Can inversion occur without the presence of a fœtus or tumor connected with the uterus, but simply by reason of some condition in the uterus itself? It is admitted that inversion cannot take place if the uterus is healthy. But in a soft, flabby condition of the organ, the possibility of the accident must be recognized, and unimpeachable cases are now recorded, one in a nullipara. The negative argument of Duncan, that the accident is impossible on account of the thick walls of the uterus, is begging the question, for the real point in dispute is whether the uterus may not be so dilated, and its walls so thin, soft and flabby, as to permit the accident. Baudelocque gives one case of a patient 15 years old. Thomas mentions Parker's case, where the uterus was removed for a supposed polypus. In the last case the trouble was recognized as due to efforts made in playing tenpins.

The second question discussed is, does inversion always begin at the fundus? This is the general assumption, but there is a possibility that it may begin at the cervix, and such a claim is made by Thomas. The probability rests upon the analogy of inversion to prolapsus of the bowel. The uterus must be soft and flabby, and in a condition favorable to a gradual rolling out of the wall in a way similar to the process of intussusception. Three cases in proof of this are given by Dr. Taylor, and one more case is added by Dr. Keene. A study of these cases brings the conclusion that inversion may begin at the cervix.

Does puerperal inversion occur except at or immediately after delivery? is the third important question discussed. May it be due to sudden rising from bed, or to straining at stool? No satisfactory answer has been given. No doubt the discovery of inversion is often delayed, but cases are on record which show that very probably the condition is occasionally not produced till some time after delivery. The first case happened in Chicago 20 years ago, and is of special interest from the fact that it led to a libel suit, which resulted in much pecuniary loss to Dr. Fisher, the attending physician. There was some flooding attending labor, but it was controlled without difficulty. There had been pain in the right side before delivery, and this continued after the expul-

sion of the placenta. After 10 days Dr. Fisher's visits were discontinued. One month later inversion was discovered.

The second case was in the practice of Dr. Sayles, and is given by Delamater. It was a second labor. No difficulty was experienced till after the birth of the placenta, when there was flooding so that the patient fainted. On account of the hæmorrhage Dr. Sayles was particularly careful to see that the uterus was contracted. No further complication occurred till the tenth day, when the woman, straining at stool, felt something give way. Then inversion was discovered.

In the third case, a twin birth, the patient did well till the eighth day. Then she got up and a slight flooding occurred. After this there was occasional bleeding till the twenty-first day, when the uterus was found inverted.

In the fourth case inversion did not occur till the ninth day, while in the fifth case it probably happened at the end of forty-eight hours.

In the sixth case the uterus was examined on the sixth day, and the inversion was discovered on the thirteenth day. Two more reliable cases are reported. The conclusion drawn from the consideration of these cases is that relaxation of the uterus may occur some hours or days after labor, and at this time inversion may very probably occur.

The fourth mooted point is thus stated as a question: May inversion occur without symptoms to attract attention? Generally the symptoms are prominent and the accident is mostly fatal within 72 hours. But there are recorded cases which answer the question in the affirmative. In many of the cases given in the last paragraph there was no pain nor other suspicious symptom. Two others have been collected by Dr. Reeve. In the first the patient was in labor eight and one-half hours. Ergot was given. There was no hæmorrhage till after forcible extraction of the placenta, when there was some flooding. Inversion followed the extraction of the placenta by traction on the cord, but there was absolutely no shock. In the second case the fœtus and membranes were born suddenly. Inversion occurred, but attended with no pain nor hæmorrhage.

These questions are important, both from a legal and diagnostic standpoint. It is believed that the cases have never before been collected. The importance of the last question in the diagnosis of polypus is emphasized. The possibility of the presence of an inverted uterus should never be forgotten in any case of suspected polypus.

In the discussion of the paper, Dr. Scott, of San Francisco, spoke of an interesting case which came to him last year. The placenta came away suddenly after traction on the cord had been made. Hæmorrhage, which continued three weeks, followed. Inversion was recognized by the attending physician, but it was not reduced. Later a second physician was called in. He also recognized the condition, but made no attempt at reduction. For seven months the patient had an inverted uterus with no hæmorrhage after the first three weeks. The symptoms were pain and a dragging sensation in the back and pelvis, and leucorrhœa. In the eighth month the baby was weaned; then hæmorrhage began. At this time the patient came to Dr. Scott. He found the inverted uterus not very large nor soft He accomplished the reduction without much difficulty in about twenty minutes, but during the process he distinctly felt some of the circular muscles tear. After the reduction the uterus was patulous so as to admit four fingers to the fundus. After a time iodine and hot injections were used in the cavity. In three weeks after the reduction menstruation came on and with it hæmorrhage. The bleeding continued for ten days, and was so severe as to be alarming. At the end of this time the uterus was as patulous as before. Dr. Scott then, perhaps unjustifiably, introduced sutures into the cervix. A severe attack of cellulitis followed which, happily, terminated by resolution.

Dr. Byford, of Chicago, had seen nine or ten cases of inversion. He gave a short account of a case which he had published in 1870. The case had a bearing on the third and fourth points of the writer's paper. Dr. Byford attended the patient in her second labor. The labor was not remarkable in any way. There was no hæmorrhage or other symptoms. After delivery the uterus was felt in position through the abdominal walls. At subsequent visits the uterus was found in position by abdominal examination. Three months later the uterus was found inverted. As no vaginal examination had been made after delivery, the possibility of an unrecognized inversion is admitted. The only other fact having a bearing on the case, is that the baby was weaned two or three weeks before the inversion was discovered.

Dr. Browne spoke of a case which was supposed to be due to the patient's rising from bed on the ninth day. Hæmorrhage, which with other symptoms had previously been absent, followed the effort. In this case there was laceration of the cervix.

Dr. Dunlap related the history that had been given him by a competent surgeon who had attended a case of chronic inversion. The labor was normal, but continuous hæmorrhage followed. Vaginal examination showed the os and cervix in position. Some months later, by repeated examinations, the doctor found the os gradually dilating and the uterine walls rolling in, and finally the inversion became complete.

Dr. E. W. Sawyer, of Chicago, spoke of a fatal case of puerperal inversion, occurring in his own practice, which was interesting on account of the unusual distension of the uterus. The pains were feeble, but the labor short, and a very large amount of amniotic fluid escaped. After removal of the placenta by traction on the cord, the uterus reached above the navel. Five minutes later alarming hæmorrhage occurred and ergot was given. Then the uterus was found to have disappeared, and a vaginal examination showed the organ inverted. In fifteen minutes the uterus was ergotized and replacement impossible. At the autopsy the remains of a large circular placental attachment were found on the fundus, and it was thus shown that gravity had caused the fundus to drop on account of its weight.

Dr. Howard, of Baltimore, spoke of a case of inversion due to the delivery of a large fibroid, and of

another case where the inverted uterus had been mistaken for a polypus.

Foreign Bodies in the Abdomen after Laparotomy, by Dr. Henry P. C. Wilson, of Baltimore. Sponges and instruments are probably left in the abdomen more commonly than is generally supposed. These foreign bodies may be a not unfrequent cause of death and it is quite probable that, in many cases, the accident is not fatal. Before relating, in full, the history of a case of his own, Dr. Wilson gave a short account of twenty other cases that he had, with difficulty, collected. Only five of the twenty cases have been published. Six of the twenty-one known cases have happened in America. The foreign body in one of these cases was a pair of forceps and in five cases a sponge. Of the foreign cases one was in the practice of Lawson Tait. It was fatal in four days. Sir Spencer Wells has had two cases. In one the loss of a sponge was discovered after several hours. The next morning the abdomen was opened and the sponge found and removed. In the other case a pair of forceps was missed two hours after the operation. The wound was opened the next morning and the forceps found. Karl Braun and Gustav Braun have each had a case where a sponge was found at the autopsy.

On February 20, 1884, Dr. Wilson removed from a pregnant woman, through an incision four inches long, a dermoid cyst of the ovary whose weight was twenty pounds. On account of considerable vomiting the operation lasted forty minutes. After the operation there was a great deal of pain but no shock. On the following days there was considerable nausea and pain, but the temperature did not rise above 100° F. March 1 the sutures were removed; there was pain in the right groin. From this date till March 9 there was some increase in the temperature and pulse and very great pain. March 9 there was a miscarriage with an easy labor and no hæmorrhage. For the next seven days there was very severe pain with some tympanites. March 16, a cake-like tumor was discovered about the navel. No fluctuation could be felt. The tumor increased in size till March 23, when it broke, discharging a purulent fluid through the upper angle of the original incision. From this time the patient improved, until April 16 she went home. There was still some pain and discharge from the wound. About the middle of June a piece of sponge came away. The opening was then enlarged and fragments of sponge continued to be thrown out till in August the last piece was found. Since then the patient has completely recovered.

As the sponges were, as usual, carefully counted after the operation, Dr. Wilson could give no cause for the loss of the sponge except the conjecture that a piece had broken off from one while it was in use. He invited the discussion of the Society on the means of preventing the accident and stated his own rules. First, all instruments and sponges should be counted before the sutures are introduced. Second, the operator should do his own sponging. Third, very few instruments should be used.

In the discussion, Dr. Thomas, after commending the paper for its frankness and value, gave a case of his own which happened three years ago in the Women's Hospital. At the patient's request a small exploratory incision was made to confirm the diagnosis of cancer of the spleen. Dr. Hunter was the only assistant, and only one sponge was used. The operation was quite trivial, but no secretion of urine followed and the patient died. The stoppage of the action of the kidney was attributed to ether which was used, its danger in renal diseases not, at that time, being recognized. At the autopsy a small piece of sponge was found in the abdomen. Its presence could be accounted for only by supposing that a small piece had broken off during the operation.

In regard to the means of prevention, Dr. Thomas differed with Dr. Wilson in holding that the operator can not do his own sponging with advantage. He would hold one good assistant responsible for the sponging. The other rules he agreed with but in addition he had been in the habit, for several years, of tying a piece of tape six inches long to each sponge. This did not interfere with its use and would tend to prevent its loss. He also condemned the practice of leaving instruments on vessels for any length of time.

Dr. Jackson knew of three cases in Chicago, in two of which sponges and in one forceps, were left. All were in ovariotomies. Dr. Jackson makes a written list and compares the instruments with it before finishing the operation.

Dr. Dunlap handles his own instruments and does his own sponging.

Dr. Howard described the method employed in the Samaritan Hospital in London. Two nurses have charge of the sponges, of which fifteen are used. At the close of the operation each counts the sponges as they are handed from one to the other. This method was adopted on account of a case where a sponge was lost. In this instance the sutures were removed, the sponge found and the patient recovered. At another time a sponge was thought to be missing. The sutures were removed, but no sponge was found and the patient died.

Dr. Engelmann, of St. Louis, added a case to the list, one occurring in his own practice, where the loss was due to the officious interference of a visitor, a prominent gynæcologist, who usurped the duties of the assistant who had charge of the sponges. Before closing the abdomen a sponge was found missing. Dr. Engelmann searched for it carefully, examining especially the cavity of the pelvis. As it could not be found it was supposed to be in some waste that had been thrown out. Some time after the operation the patient became demented and later died. The post-mortem showed the sponge between the omentum and a fold of the intestine high up on the right side. The sponge was clean, there had been no inflammation and only slight congestion.

Dr. Mundé pointed out the moral of several cases by calling attention to the danger of using friable sponges. Also, a sponge should always be cut and not torn. He would always use a holder for each sponge.

Dr. Wilson, in closing, said that his number of cases had been increased to 28. Six had been added by the speakers and one he had learned of on his way to the meeting.

In the afternoon session the first paper read was by Dr. C. D. Palmer, of Cincinnati, entitled: Abdominal Section; its Value and Range of Application in Diagnosis and Treatment.

The writer first emphasized the importance for proper therapeusis of a correct diagnosis, and called attention to the unusual difficulties in distinguishing the pelvic diseases of women. As an aid to diagnosis the surgical rival of an exploratory incision, tapping, has a limited value for the following reasons: First, the dangers of tapping are greater than those of abdominal section except in cases of ascites and unilocular ovarian cyst. Second, it increases the danger of a subsequent operation two per cent. Third, the physical characters of the fluid are not characteristic. On the other hand exploratory section is a completely reliable means of diagnosis, and in suitable cases it may be extended to a complete operation. If the patient is in danger from the disease, and the treatment uncertain, and if there is no malignant disease, section is justifiable.

The following summary of the cases where incision is especially applicable is given: First, ovarian cysts complicated with ascites, etc. Second, interstitial uterine fibroids which produce hæmorrhage. The fact that these fibroids sometimes cease to grow makes this rule somewhat doubtful. Third, some cases of acute and chronic peritonitis. Fourth, intestinal obstruction which may be due to adhesions between the intestine and peritonæum. Fifth, some cases of pelvic abscess where drainage through the vagina is not sufficient. Sixth, extra-uterine pregnancy after the fourth month when puncture of the sac or electricity cannot kill the fœtus.

After the reading of the paper both Dr. Engelmann and Dr. Mundé agreed with the writer that section had been too little used in diagnosis. Dr. Mundé said that statistics showed against tapping a mortality of 25 per cent., a result which proved the greater safety of exploratory incision.

Dr. Wilson related a case of his own which showed the superiority of incision to tapping. There was a doubt between the diagnosis of amniotic dropsy and pregnancy with ovarian cyst. He found against the abdominal parietes the thin uterine walls, which would have been punctured by tapping. The woman was delivered safely.

Dr. Maury gave two cases which showed the importance of incision in diagnosis. Dr. Dunlap mentioned a case of psoas abscess that had been mistaken for malignant disease and impacted colon. Dr. Scott gave a case which illustrated the importance of opening early a pelvic abscess.

The Hygiene of Pregnancy, by Dr. Samuel C. Busey, of Washington; and Rapid Dilatation of the Cervical Canal, by Dr. William Goodell, of Philadelphia, were read by title on account of the authors' absence.

Cervical Fibroids as a Cause of Dystocia, and their Removal by Vaginal Enucleation, by Dr. Paul F. Mundé, of New York, was next presented. Fibroids generally exist in the body of the uterus; they are found in the cervix in only about ten per cent. of all cases. In pregnancy they may be dangerous by preventing the expulsion of the fœtus even after craniotomy. Sometimes the difficulty may be obviated by premature delivery. Tapping a soft tumor may suffice. If the tumor have a pedicle its removal is not difficult. In large sessile tumors we have to decide between Cæsarian section and enucleation. The great fatality of the former alternative shows the value of Thomas's serrated spoon which makes enucleation possible.

The writer gave a case in his own practice which proved the feasibility of the operation for very large tumors. The patient had bled considerably for five or six months and had become very emaciated. The pelvic cavity was filled with a large tumor which was a fibroid in the anterior lip. Pregnancy was diagnosed by ballottement. The fœtus was thought to be living. Two methods of treatment presented themselves. The first was to wait till term and then, according to the indications, perform Cæsarian section, vaginal enucleation or Breisky's method of intra-abdominal enucleation. The second method was to wait one or two weeks for recuperation and enucleate through the vagina. By the last method the child would probably be sacrificed, but the condition of the mother and the fear concerning the progress of the tumor determined its adoption. On the day set for the operation the patient had uterine pains and rupture of the membranes. The tumor was removed in an operation lasting three-quarters of an hour. The difficulty in the removal was due to the impossibility of grasping the tumor securely by any instruments of prehension. There was not much hæmorrhage during or after the operation. The fœtus was delivered and the uterus contracted well. In two weeks the patient left her bed. The tumor, which was exhibited, measured at the time of its removal eight inches in length, six inches in breadth and two and one half inches in thickness, and its circumference was about twenty and one-half inches.

This case disproves Playfair's statement that only small tumors can be enucleated. Schrœder reports a case where the tumor was smaller than in the one just given; in other respects the cases are very similar. He allowed the case to progress to term, when he enucleated the tumor and saved both mother and child. Noma relates eight cases of enucleation, in all of which, however, the tumor was smaller than in Dr. Mundé's case. In all of these cases the mother lived. Five of the children were saved. Comparing these results with those of Cæsarian section, we see the value of the operation.

The discussion of the paper was postponed to the following morning. In the evening a banquet was given to the visitors by the local Gynæcological Society.

Wednesday morning the discussion of Dr. Mundé's paper was taken up.

Dr. Jenks had had one case of a cervical fibroid which interfered with labor. He incised and enucleated it.

Dr. Wilson held that enucleation is the correct practice when the tumor is accessible.

Dr. Byford thought that the surgeon should not interfere till labor came on, for enucleation would

then be as easy as at any other time and the tumor might be pushed out by the contractions of the uterus without injury to the child. He had had two cases where the tumor was pushed out before the child. In one the tumor weighed about eighteen ounces and in the other it was about as large as that presented by Dr. Mundé.

Dr. Dunlap believed that there might be cases where enucleation at labor would be dangerous. In Dr. Mundé's case most of the tumor was enclosed in a capsule and only a small part of it was intimately connected with the muscular tissue of the uterus. But if more were attached the difficulty would be much increased.

Dr. Van de Warker related a case which illustrated the superiority of enucleation to its alternative. He was called to a case thirty hours after labor had begun. A solid mass, attached to the posterior cervical wall, filled the pelvic cavity. He favored enucleation but Cæsarean section was made by the advice of the other consulting physicians. The child was saved, but the mother died. At the autopsy it was shown that enucleation was feasible.

Dr. Reamy told of a case where a tumor was attached to the posterior wall a little above the os internum. The diagnosis was at first obscure, but when the tumor finally presented it was found to be sessile. He incised and enucleated and then delivered the child. Both child and mother did well. He believes it is best to wait to labor for two reasons. First, if the tumor is not large so as to distend the parts well, enucleation is much easier when the passage is dilated by labor. Second, the physiological state of the system is such as to render the liability to septic infection much less at term than before.

Dr. Mundé in closing contended that the time of removing the tumor depended upon the condition of the patient in each case, on the size of the tumor when first seen, and on the rapidity of its growth. He considered the spoon saw invaluable, but in his tumor there was only one place where it was needed. A better forceps for traction was quite essential. In reply to Dr. Dunlap, he believed that a tumor could be removed if there were many adhesions, but of course the difficulty of the operation would be much increased.

Before presenting his paper, Dr. Thomas exhibited to the Society an interesting relic which he had picked up during his summer vacation in a Long Island village. There he met a gentleman who was heir to an old French estate, and who had in his possession several old trunks filled with curious heirlooms, duelling weapons, old dresses, etc. In the bottom of one of these trunks was the curiosity exhibited, a *cincture de Venus*, made of metal joints, covered with velvet, and with the waist and perineal bands fastened behind with a lock, which was sealed with wax, on which was stamped an armorial design. It differed from the one shown in the Musée de Cluny, which had an ivory ball for the vulvar shield. In this both the anal and vulvar shields are fenestrated, the fenestra being protected by projecting metal points.

His paper, entitled A Further Report upon Extra-Uterine Pregnancy, embodying Six Cases, was next read. This paper was a supplement to one read at the meeting of the Society in 1882, when 21 cases were reported. According to the statistics of Bandl, out of 60,000 patients in the Vienna Lying-in Hospital, there were only five cases of extra-uterine pregnancy. Hence the writer must consider himself very fortunate to have seen so many cases.

It is only within the last 10 to 15 years that the subject has received much attention. The keynote to the management of the cases is early certain diagnosis. Even after fœtal movements this diagnosis is difficult on account of the occasional existence of a uterus bicornus, or of a thin-walled uterus, or of a combined extra and intra-uterine pregnancy. Dr. Thomas has seen all kinds of tumors confounded with it from a fæcal tumor to a phantom tumor of the abdomen. Yet modern methods of study make us cast aside the maxim of Depaul, that diagnosis is not possible before the fourth month. As regards treatment, Dr. Rogers, 20 years ago, advised removal as soon as the diagnosis was made. In 1883 and 1884 Tait reported five cases operated on, four of which recovered. Briddon in 1883 operated in one case.

Before describing his own cases, the writer gave a short account of some experiments on rabbits by Leopold. Small living embryos of different ages were put into the abdominal cavity. Many of the animals died from peritonitis. When this was not the result the embryos became encapsuled.

In a report of cases Dr. Thomas considers a detailed account of symptoms very important. If a case recovers under treatment there will always be a doubt concerning the diagnosis unless the details be given with sufficient fullness to enable any one to form his own judgment.

Case 1. Mrs. T., aged 27 years, nullipara; menses had once ceased for a period of four months. Four weeks after the stoppage of a menstrual flow she received a severe shock while stepping from a car. Great pain and nausea followed. The pulse was 130 per minute, and she had the symptoms of a hematocele. She was anæsthetized, in order to examine the pelvic organs. A tumor was found behind the hematocele, and a diagnosis of extra-uterine pregnancy was made. To lessen suffering, aspiration was performed below the navel, and a straw-colored liquid was drawn off. After the patient recovered from the anæsthetic her pain was very severe, and she died that night. The post-mortem examination showed the uterus large and dilated, and the surrounding tissues filled with much lymph. A fœtus of eleven months was found in Douglas's pouch. The examination made it evident that laparotomy would have been fatal. The sac must have been ruptured by the movement of the car. This was Dr. Thomas's fourth case of aspiration.

Case 2. Mrs. G., aged 32 years. Married seven years. Has had no children. Since marriage her menses have been twice delayed. The uterus is retroverted. Her menstrual period was due on the 1st of December, 1883. December 23 she had a painful flow. The doctor who was called enjoined rest, and the symptoms subsided. On the 24th of December she had a worse attack of pain, accompanied with

chilliness and fainting. The uterus was found retroverted and increased in size. December 29 there was slight hæmorrhage, which gradually increased till January 2, when it subsided. On the latter date the pulse was 108° and the temperature 100.2° F. As the discharge now became fetid the cavity of the uterus was explored, decomposed clots brought away, and the uterus washed. All went well till the 7th inst., when there was a flow of bright red blood. On the 9th the uterus was of the size of three months of pregnancy. No tumor could be seen outside of the uterus, and the question of interstitial pregnancy was raised. On the evening of the 9th pain reappeared. At 9 o'clock temperature 101° F., pulse 120; morphia was given. At 10 o'clock there was more pain, and collapse. Pulse was 160, and very weak. She was kept up with stimulants and morphia. On the next day tympanitis developed. January 15 a large tumor was felt at the right of the uterus. Interstitial pregnancy, with rupture of the sac, was diagnosed. Dr. Thomas was called, and confirmed the diagnosis, and decided not to operate. Five days later the use of the electric current was begun. One electrode was placed in the rectum, and the other over the tumor. The bowels began to move well, and the tumor grew firmer. In May the patient left town, and in June she had quite recovered.

CASE 3. Mrs. H. Married 18 months. Had had two miscarriages. She menstruated in September. About the middle of January she had nausea and pain in left iliac region. After the middle of March she could not leave her bed and suffered much from pain in the abdomen and back with attacks of syncope. There was no increase of temperature. March 27, Dr. Thomas was called. He found a tumor the size of a fist and diagnosed extra-uterine pregnancy. On the next day the electric treatment was begun. The manner of using the electric current has been described elsewhere. Essentially it consists in applying a galvanic current for a short time, then, after a short interruption, a weaker Faradic current. In this case he began with a galvanic current of 17 cells from Kidder's battery for five minutes, and a Faradic current of ten cells for one minute. The application caused great pain but the tumor continued to increase in size. The strength of the current was gradually increased, some of the applications being made with the patient under the influence of ether. April 28, she was anæsthetized and a current of 40 cells with 60 interruptions per minute was employed. This course was adopted only as a last alternative to abdominal section. From this time the patient improved. May 18 a menstrual period began which lasted three days. When last heard from, on the 13th of September, she was much improved, but there were occasionally slight paroxysms of pain and the tumor could still be felt. It is admitted that the diagnosis in this case was not positive. The case resisted the current more than any other that Dr. Thomas has seen, and this fact more than anything else causes the doubt in the diagnosis.

CASE 4. In 1882 an Irish lady came to Dr. Thomas's hospital to be treated for sterility, which was due to uterine catarrh. In a few months she was discharged "cured." In 1883 she had nausea and some hæmorrhage. Dr. Lambert, the physician who had charge of the case, diagnosed pregnancy at the fourth month and advised rest and quiet. Later she had further attacks. From the first to the middle of January, 1884, her pain was very severe, and she was finally carried to New York on a bed. Dr. Thomas found symptoms of pregnancy and a tumor behind the uterus. At a consultation of four physicians, one man agreed with Dr. Thomas in his diagnosis of extra-uterine pregnancy, while the other two differed. On January 23 a current of seventeen cells was used. The number of cells was gradually increased. In forty-eight hours the symptoms had greatly improved, and in ten days the woman went home. One month later she began to work, and August 22 she was reported quite well.

CASE 5. Was one of supposed rupture of the tube in a case of tubal pregnancy. Dr. Briddon operated and found the condition diagnosed, but the patient died.

CASE 6. Patient aged 23. Married 6 years. Has had one child. She had symptoms of pregnancy for nine months. At the end of that time she had the symptoms of labor and called her physician. He found the labor pains regular, but the os did not dilate. On the next day the patient was anæsthetized and abdominal pregnancy diagnosed by the finger in the uterus. Dr. Thomas was called and decided to postpone any operation on account of the cessation of labor pains. For the next three months the patient did well, but then she became worse, and in June an operation was performed. Through an abdominal incision a fœtus weighing nine pounds, three pounds of amniotic liquid, and four pounds of a huge placenta were removed. The placenta had very extensive attachments, including the ascending, transverse and descending colons. As it could not with safety be torn from the bowel, Dr. Thomas found it necessary to introduce the hand under the placenta and pass a cobbler's stitch through the whole attachment, about an inch and a half from the intestine. Then that portion of the placenta was cut off and the rest was puckered up into a pouch, the mouth of which was sewed to the abdominal wound. This operation was well characterized by the expressive phrase, marsupialization of the woman. The operation was done with antiseptic precautions and the marsupial pouch was well irrigated. In twenty-four hours the patient had violent acute septicæmia. The temperature was 104.4° F., and the pulse 150. The sac was washed every two hours, and in four days the symptoms improved. The recovery was then rapid, and in six weeks the patient felt as well as ever. The upper and lower parts of the wound had healed, and the sac was closing from the bottom by granulation.

The delay of three months Dr. Thomas considered very important, for such a large placenta could not have been removed at term. This is his fourth case of extra-uterine pregnancy that went beyond term. All recovered.

In the discussion, Dr. Mundé said that he had had four cases. One of them illustrated the value of the electric treatment.

In reply to a question, Dr. Thomas said that he used whatever current would kill the child.

Dr. Harvey asked a question concerning the size of the uterus. In a patient of his at fifteen months of extra-uterine pregnancy the uterus was normal in size. Dr. Thomas replied that involution occurred after the death of the fœtus.

In reply to a question concerning the time to use electricity, Dr. Thomas made the following answer: Before five months use electricity. After that time if the child is alive it is probably in the abdominal cavity, for the tube is ruptured earlier; let it go to term and perform laparotomy. If the child is not alive at the end of nine months wait in order to let the placenta shrivel.

Dr. Howard had a case where the uterus did not contract after the death of the fœtus. He also related a case of Keith's where a supposed tumor was found to be a fœtus which had remained in the tube during a normal uterine pregnancy.

(*To be continued.*)

BOOK REVIEWS.

Transactions of the Medical Society of the State of California During the Years 1883 and 1884. Paper, 293 pages.

This volume presents much interesting matter, and is singularly free from trash of all sorts.

Besides the ordinary reports, the following papers are presented: Old and New Codes; Hawaiian Leprosy; Experience of a Country Doctor; Causes Modifying the Climate on the Pacific Coast of the United States and British Columbia; Fracture of the Neck of Condyle of Lower Jaw.

As the Society, by its vote, ordered the general distribution of 500 copies of Dr. Wilder's paper, "The Old and New Code," that document is worthy of more than a passing notice.

After a historical review of the break in the profession in New York, he proceeds to consider the causes of this rupture. He shows that it is due to homœopathy, and that homœopathy is due to the weakness of the regular school in the department of therapeutics. Respecting this he says: "Unless serious and determined efforts be made to give this subject greater importance, both in practice and in the curricula of our medical schools, we need never expect to demolish homœopathy."

As a remedy for the present difficulties he proposes to establish a national examining board, on the following plan: Let the American Medical Association select three men, the Medical Corps of the Army and Navy each one, the five to constitute the Central Committee or head of the various State Examining Boards, these latter to be apppointed by the respective State Societies.

The graduate of *any school* is to be allowed to present himself for examination, but all successful candidates are to be bound to use no other title than Doctor of Medicine. "The carrying out of this plan would result in the establishment of a *caste* in the profession and give an opportunity for the better class of medical men to occupy a higher position."

The fundamental idea of this plan seems to be that the profession by purifying and strengthening itself is to become able to crush out all opposition. The fallacy of all such measures rests in this fact. No examination can positively determine a man's fitness to be a practitioner. His success in the actual conflict with disease is the only true criterion by which his merit can be judged. All organization and legislation fall short of the ideal, and it must be so, for in the future as in the past, quacks will thrive when fools require their services. A gradual purification of the profession and a gradual education of the people are the only means of eventually harmonizing their mutual relations.

Lectures on the Principles and Practice of Medicine. Delivered in Chicago Medical College, Medical Department of the Northwestern University. By Nathan Smith Davis, A.M., M.D., LL.D., Dean of the Faculty and Professor of the Principles and Practice of Medicine, etc., etc., etc. Jansen, McClurg & Co., Chicago: 1884.

The volume comprising these lectures is excellent in appearance. The features which, after a careful perusal, attract one's attention especially, are: first, the distinction which the author clearly points out between the functional derangements of living matter that are manifest in the diseased state and the result of these which is ordinarily described as morbid anatomy. Second, the fullness and completeness and detail with which the treatment of disease is described, and third, the insertion of metric measures in all prescriptions. He, however, adds in brackets the apothecaries' measure.

So much attention has been devoted by pathologists to the study of morbid anatomy, both gross and microscopical, that it has come to be considered almost synonymous with pathology. The fact that morbid anatomy is the result of disease, not strictly speaking the disease, is ignored. The author in his first chapters which treat of the principles of medicine, points out the functions or attributes of living matter in general, as they are recognized by biologists, and attempts to explain the phenomena of disease by the increase, diminution or perversion of these primary functions or attributes.

The theories advanced to explain the phenomena of disease are interesting, and from their novelty when we compare this with other modern text-books, pleasing and instructive.

The author has attempted to do just what Dr. Greenfield in his recent address to the British Medical Association as Chairman of the Section on Physiology and Pathology, has urged ought to be done. The latter writer says: "It is only as means to an end that morbid anatomy and histology are essential, and that end is the tracing out of the processes of disease and making possible a rational application of physiology in abnormal conditions."

Dr. Stokes, in an address a few years ago before the same body has said: "There are differences—

and for want of a better name we may call them vital —which more intimately relate to life and health than to the anatomical or chemical changes produced by disease; and these are to be reached by the study of the living phenomena of the body and of the influences of agents upon them."

In the nearly half century of most extensive clinical experience which Dr. Davis has had, the phenomena of life or the vital activities of tissues as modified by disease and therapeutical agents has been impressed upon him. He has therefore formulated in his discussion of the principles of medicine some of his observations in this direction.

In the discussion of the treatment of disease he appreciates the fact that students and general practitioners need, and wish, detailed explanations of the methods adopted and of the results to be expected from them. Dr. Davis first explains the indications for treatment, then indicates the drugs that may be used, and points out especially those that he has found in his own extensive and varied experience most useful. He gives also numerous formulæ, for, as he says in one of the early chapters, we get often as characteristic an effect from a combination of drugs as from an individual drug, and almost always the effect desired is obtained best by combinations.

The spirit of his teaching, however, is that all students and practitioners should be so familiar with therapeutics that they need not be dependent upon others for combinations or set formulæ.

Not only does he thoroughly discuss the therapeusis of each disease, but also the hygienic requirements.

Many of the pages treating of etiology show most careful observation and research.

The metric system of weights and measures he recommends, and to assist in its introduction he has incorporated them in his work. However, in order to make the volume useful to those not familiar with the system he has added the other.

The volume will surely prove acceptable to the medical public, for it embraces the ripe fruit of many years of experience and observation by one who has been known to the profession of this country as one of its most clear, logical and original thinkers and accurate observers.

VISIONS OF FANCY, a poetical work, by N. M. BASKETT, M.D. Commercial Printing Co., St. Louis: 1884. Cloth, 109 pages.

Dr. Baskett's fancy, like that of many medical men, is a little morbid. His rhymes are hard and meters faulty. "That Yearling Brindle Steer" is the gem of the collection. It is not a vision of fancy, but certain matters of fact respecting the loss of that animal, and also an old Missourian's opinion of a Yankee.

MEDICAL ANNALS OF BALTIMORE from 1608 to 1880, Including Men and Literature. By JOHN R. QUINAN, M.D. Baltimore: Press of Isaac Friedenwald. 1884. Paper, 275 pages.

This is a chronological and biographical index of the subjects considered, well arranged for reference with a systematic general index to the whole work.

NECROLOGY.

N. S. DAVIS, M.D., EDITOR JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—A recent number of the Pennsylvania *Magazine of History and Biography* has among its notes and queries an inquiry from Howard M. Jenkins, relative to Doctor Enoch Edwards of the Revolution. The inclosed sketch, taken from the manuscript Biographies of the "Medical Men of the Revolution," contains the information desired. And as the doctor was a patriot in the Revolution, a scholar and a man of note in the community in which he lived, you may deem it worthy of a place in the JOURNAL. Very respectfully,

J. M. TONER.

EDWARDS, ENOCH, a surgeon of the Revolution, was born in Philadelphia Co., Pa., in 1750; died in Frankford, Pa., April, 1802. The name of this physician appears in the records of a meeting of the Philadelphia Co. Committee of Inspection and Observation, held March 21, 1776, in Philadelphia, at which Colonel William Hamilton presided as Chairman, and Dr. Enoch Edwards served as Secretary (American Archives, 4 Series, vol. 5, p. 442).

The subject of this sketch was the son of Alexander Edwards, Justice of the Peace, a farmer in Lower Dublin, Philadelphia Co., whose will was made April 22, 1777, and which was probated May 27, 1777. He left to his son Enoch a farm in Byberry of 51 acres, and to his son Evan, "the plantation in Lower Dublin, where I now dwell." The doctor succeeded his father as a Justice of the Peace.

Alexander Edwards was a man of good understanding, a member and Elder of the Baptist Society of Pennepal.

His son, Enoch, was designed for the ministry, and was educated under the immediate supervision of Dr. Jones, of Pennepal, but having a greater fondness for medicine, ceased the study of Divinity, and became a student of medicine under Dr. B. Rush. After completing his studies, he settled to practice in Byberry.

His brother, Major Evan Edwards, held command and served with distinction throughout the war for independence.

The doctor took an active and influential part in the support of the rights and liberties of the colony, as we see by his attending the meeting in March, 1776, already referred to. His name appears again in the report of the proceedings of the Provincial Conference of Committees of the Province of Pennsylvania, held at Carpenter's Hall, in Philadelphia, June 18, 1776. (American Archives, 4 series, vol. 6, p. 195); also, (Pennsylvania Archives, 2 series, vol. iii, pp. 636, 638).

The Philadelphia County Committee resolved, July 13, 1776, to raise their part of the Flying Camp; and at a public meeting chose their officers, among whom was Dr. Enoch Edwards, as surgeon. From papers filed in the Pension office at Washington, it appears that in January, 1777, Dr. Edwards was serving as aid-de-camp to Lord Sterling, along with Colonel James Monroe, afterwards President of the

United States. Subsequently to this date Dr. Edwards was appointed senior surgeon in the hospital department at Princeton.

In 1777 he was captured by the enemy near Bustleton and taken to Philadelphia, and shortly after released on parole. (—. Comly's sketch of Byberry, Pa., Hist. Society, vol. ii, p. 97). Dr. Edwards was united in marriage Oct. 26, 1778, to Frances Gordon at Philadelphia.

His connection with the hospital terminated in 1780. Shortly after this Dr. Edwards settled on a plantation in the vicinity of Philadelphia, near where he was born. He was fond of rural life and its pursuits, and particularly earnest in his efforts to advance the interests of agriculture. He was a man of property and influence in the community. Besides his real estate in 1783 he was returned by the assessor as owning two slaves valued at $133.33 each. In 1786 the assessments showed him to have been the owner of seven slaves, assessed at $200 each. (Martendals' History of Byberry and Moreland, p. 125). Dr. Edwards was chosen a member of the convention which framed the first constitution adopted by Pennsylvania after the Revolution.

His habits of thought and familiarity with public affairs, rendered him a valuable associate in that body.

He deserved and enjoyed to the fullest extent the confidence of the community in which he lived. The records of the Supreme Executive Council of Pennsylvania, which met in Philadelphia, Jan. 26, 1786, contains the following minute: "A petition from sundry inhabitants of the township of Oxford, Lower Dublin, Moreland, and Byberry, in the county of Philadelphia, praying that Dr. Enoch Edwards be appointed a justice of the Court of Common Pleas for said county, was read, and Mr. Edwards was commissioned accordingly." (Pennsylvania Colonial Records, vol. xiv, p. 609).

Although disliking party politics, and seldom taking part in them, yet he did not conceal his opinions, where he deemed it necessary, or to take a position, when a principle was involved.

His mind tended rather to the philosophical and practical, than to the theoretical affairs of life.

Dr. Edwards was, therefore, popular in the community in which he lived, and with the leaders and influential men of both parties, during and after the Revolution.

He was noted for his beautiful farm, and for his extensive orchards and superior fruit, and frequently entertained the leading statesmen and prominent actors in the Revolution at his house, when they happened to be in Philadelphia on public business.

He corresponded on agricultural and other subjects with General Washington, Adams, Jefferson, Madison, Monroe and many others of the leading and influential men of his day.

He published some very interesting papers on agricultural subjects. An able charge which he delivered to the grand jury, while on the bench, was published in the *American Museum* in 1788.

In 1793–4 Dr. Edwards with his wife visited Europe, and carried with him letters of introduction from General Washington to some of the most successful agriculturists and other prominent men in England. Some years before his death (1792) he built himself a commodious house at Frankford, a few miles from Philadelphia, where he spent the closing years of his life. His wife survived him many years, but he left no children. From 1810 Mrs. Edwards resided in the family of James Robertson, President of the Bank of the United States, whose first wife was a cousin of Dr. Edwards.

Mrs. Edwards was living in 1844, at the age of 82.

J. M. T.

Love, Albert Clarence, M.D., was born in Lounds County, Mississippi, on December 2, 1851; died of typhoid fever at his residence in Darrowville, La., July 29, 1884, aged 32 years and 8 months.

At an early age Mr. Love entered school at Cooper Institute, Mississippi, where he received a liberal literary education preparatory to entering upon the arduous studies of the profession he had singled out for his life's labors. It was at this institution of learning that the author and subject of this sketch first met and formed the tie of friendship, which grew stronger as the years passed, and which was broken only by the ruthless hand of death. It was here, too, that the author watched and saw develop, year by year, in Mr. Love all of those true and ennobling traits of heart and mind that go to make up the great and good man.

Mr. Love had a retentive memory, acquired knowledge rapidly, and soon gave evidence of great literary promise. After his course of study he was frequently summoned by the Faculty of his Alma Mater to deliver an address at the Commencement exercises, or chosen as orator on the occasions of the reunions of the members of the Philomathean Literary Society, of which he was, while pursuing his literary course, a most zealous member.

At the age of 22 years he took a course of lectures in Mobile Medical College, Mobile, Ala., after which he repaired to the Louisville Medical College, Louisville, Ky., where he graduated with distinction in the spring of 1875, and was elected by the unanimous vote of the class to deliver the salutatory address on that, to him, memorial occasion. The doctor then returned to his old home in Mississippi, where he located and practiced his profession with great satisfaction to his friends and patrons, and with beneficial results to himself until the fall of 1877, when he left his field of labor, went to New Orleans, and during the ensuing winter and following spring pursued his studies, clinically, at the great Charity Hospital, and didactically in the Medical Department of the University of Louisiana. In the fall of 1878, he removed to Darrowville, where he gained the love and confidence of all who met him, and soon acquired a large and lucrative practice. He was a young man of great research, and believed in progression, not only in his profession but in every way that appertained to the development of mind and advancement of his fellow-man.

He contributed articles of interest to the local papers of his community, and occasionally produced

articles for medical journals. One of his favorite studies was the "prehistoric relics" of any community in which he lived. He had collected many peculiar relics, and wrote in an interesting manner on the subject. In the summer of 1881 he wrote a synthesis on the fever which was at that time prevailing in his section of the State. It was of a type resembling yellow fever in many respects, and was being investigated by a committee representing the National Board of Health. This article was published in a Louisville medical journal, and was read with interest and profit by many of the profession in this section of the malarial district. In the spring of 1882 the Faculty of Louisville Medical College elected him to deliver the charge to the class which was then to graduate. This honor he complied with, in a most befitting address. He was a member of the Louisiana State Medical Association, Health Officer for the parish in which he lived, President of the Board of School Directors, a member of the Knights of Honor, a member of the Knights of Pythias, the Guild of Ascension, the Ascension branch of the Sugar Planter's Association of Louisiana, and the Democratic Parish Executive Committee. The resolutions adopted by these several organizations, on learning of the death of this distinguished member and great and good physician, speak in unmistakable language of the great loss that they feel they have sustained. Pall-bearers were selected from members of these various associations, and the Knights of Honor and the Knights of Pythias escorted the body across the "Father of Waters" to the Episcopal church in Donaldsonville, where funeral services were conducted by the Rev. R. S. Stewart. From the church the remains were followed by one of the largest funeral processions ever seen in the town, to the Protestant cemetery, where, after the reading of the burial services of the Knights of Pythias, the body was entombed.

In the death of Dr. Love the community in which he lived is bereft of one of its most useful members, and our profession, which he loved so well, is deprived of the valuable services of an inquiring mind.

J. J. BLAND, M.D.

Houma, La., August 11, 1884.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING OCTOBER 4, 1884.

Stewart, Henry, Surgeon, granted leave of absence for one year, with permission to leave the United States, Oct. 15, 1884.

Edgar, Jno. M., Passed Assistant-Surgeon, detached from the "Nantucket" and placed on waiting orders, Sept. 29, 1884.

Harmon, G. E. H., Passed Assistant-Surgeon, to the Naval Academy, Sept. 30, 1884.

Bertolette, D. N., Passed Assistant-Surgeon, from the Naval Academy to the "Dolphin," Oct. 4, 1884.

Rogers, Benj. F., Passed Assistant-Surgeon, to the Naval Academy, Sept. 30, 1884.

Cooke, Geo. H., Surgeon, from the Naval Academy, and placed on waiting orders, Oct. 2, 1884.

Whiting, Robert, Passed Assistant-Surgeon, from the Naval Academy, and placed on waiting orders, Oct. 4, 1884.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM SEPTEMBER 27, 1884, TO OCTOBER 3, 1884.

Bentley, Edwin, Major and Surgeon, granted two months' leave of absence, with permission to apply for two months' extension, to take effect upon assignment to duty in Dept. Tex., of Surg. F. L. Town. (S. O. 121, Hdqr's. Div. of the Mo., Sept. 30, 1884.)

Bartholf, John H., Captain and Assistant-Surgeon, assigned to duty at Fort Ringgold, Tex., as Post Surgeon. (Par. 5, S. O. 129, Hdqr's D. of Texas, Sept. 25, 1884.)

White, R. H., Captain and Assistant-Surgeon, assigned to duty as Post Surgeon at Fort Winfield Scott, Cal., relieving Assistant-Surgeon A. S. Polhemus, who, upon being relieved, will report to commanding officer Alcatraz Island, Cal., for duty. (Par. 1, S. O. 113, Hdqr's D. of Cal., Sept. 19, 1884.)

Tesson, L. S., Captain and Assistant-Surgeon, directed to report to Commanding Officer Ft. Stockton, Tex., for temporary duty. (Par. 3, S. O. 127, Hdqr's D. of Texas, Sept. 22, 1884.)

Gibson, R. J., First Lieutenant and Assistant-Surgeon, assigned to duty as Post Surgeon, Fort Winfield Scott, Cal., relieving Assistant-Surgeon A. S. Polhemus.

Polhemus, A. S., First Lieutenant and Assistant-Surgeon, upon being relieved, to report to commanding officer Fort McDermit, Nev., for duty as Post Surgeon.

White, R. H., Captain and Assistant-Surgeon, to report to commanding officer Angel Island, Cal., as Post Surgeon, relieving Assistant-Surgeon C. K. Winne.

Winne, C. K., Captain and Assistant-Surgeon, upon being relieved, to report to commanding officer Benicia Bks., Cal., for duty as Post Surgeon, relieving Surgeon C. C. Byrne. (Par. 1, S. O. 115, Hdqr's Dept. of Cal., Sept. 23, 1884.)

Maddox, T. J. C., First Lieutenant and Assistant-Surgeon, directed to report to commanding officer post of San Antonio, Tex., for duty. (Par. 5, S. O. 127, Hdqr's D. of Tex., Sept. 22, 1884.)

Barrows, C. C., First Lieutenant and Assistant-Surgeon, leave of absence extended one month. (Par. 6, S. O. 97, Hdqr's Div. of the Pacific, Sept. 19, 1884.)

Everts, Edward, First Lieutenant and Assistant-Surgeon, granted leave of absence for one month, with permission to leave the limits of the Dept. (S. O. 145, Hdqr's Dept. Col., Sept. 24, 1884.)

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ORIGINAL ARTICLES.

PUERPERAL SEPTICÆMIA.

BY THEOPHILUS PARVIN, M.D., PHILADELPHIA.

Read in Section of Obstetrics and Diseases of Women, American Medical Association, May, 1884.

Pajot has said that the term puerperal fever ought to be consigned to the museum of antiquities. Certainly the profession generally replace it by puerperal septicæmia, a disease analogous to surgical septicæmia.

It can be defined an acute, contagious, febrile disease affecting women in childbed. This definition may seem to some not broad enough, for it does not include cases where the unborn infant is affected with a septic peritonitis, or where the undelivered woman has the disease, or where nurses attending cases of puerperal fever are attacked; and those still more extraordinary cases reported nearly 40 years ago by Mr. Storrs, where male subjects were affected by the poison of this disease, and died with peritonitis and pleuritis. But whether the facts referred to have been, as suggested by some, badly observed, or whether they are true, the field is wide enough without a definition which would include them; the term puerperal necessarily excludes their consideration.

Certain conditions favor the occurrence of the disease, they are predisposing causes. The building stored with, or partially constructed of inflammable materials, is swiftly consumed when the fire comes, and the gunpowder explodes at the touch of a spark. So physical and moral distress, primiparity, protracted, and especially artificial, whether manual or instrumental labor, crowding of obstetric wards, and cold weather predispose to the disease, but do not create it; they furnish material for the flames, they are the gunpowder without the spark. But whence the fire, and what is the spark? Here two opinions are presented. The disease is autogenetic, or heterogenetic; or it is always heterogenetic. Autoinfection suggests that the house makes the fire, the powder magazine furnishes the spark, explodes itself. It is the doctrine of spontaneous generation—a self-created poison imperils life, a blind and merciless fate dooming to disease, and often to death. The doctrine of autogenesis is a confession of ignorance—ignorance of the source of the poison—a confession which we have many times to make in regard to other forms of contagious disease. There are cases of scarlet fever where we cannot learn time and place of exposure to the scarlatinal poison—we cannot tell whence the disease came—but do we ever then conclude we have a case of autogenetic scarlet fever, an example of autoinfection? To ask is to answer the question.

Autogenesis may be a doctrine full of comfort to the obstetrician when isolated cases of puerperal septicæmia occur, and the lying-in room is but the vestibule of the grave, but is it not a simple hypothesis founded upon our ignorance, an hypothesis which we will not tolerate in similar diseases, and which is contradicted by those cases where we can distinctly trace the origin of the malady? The doctrine of identity of disease with multiple causes is not worthy of acceptation.

It seems more probable, more rational to conclude that puerperal septicæmia is always and everywhere heterogenetic. Such doctrine further commends itself by its practical results, and these are of especial interest and importance to doctors. We will be more careful and more successful in guarding the life of the puerperal woman accepting it.

The unity of the poison of puerperal septicæmia is coming to be a fixed article in the creed of most obstetricians. If this poison be not one, how happens it that sporadic cases of the disease present the same symptoms as those where the infection can be traced plainly to an external cause, and these sporadic cases likewise may beget similar cases? Moreover, multiplicity of causes may lead to inefficient prophylaxis, and various and vacillating therapeutics.

Still, in observing the genesis of a number of cases of puerperal septicæmia, we find one where cadaveric poison was the obvious cause, another where it originated in epidemic erysipelas; others where a case of uterine cancer was in the obstetric ward, and students making digital examinations of this patient afterward examined women in labor, until finally 14 lying-in women were infected; and similarly, a midwife had living with her her mother suffering from uterine cancer. She used daily vaginal injections for her, and had her general care—all the women whom this midwife attended in labor were infected; or, take the cases where sewer-gas, or the miasm from decaying animal matter, from butcher shops, from cesspools seemed the cause of the disease. Consider the remarkable case given by Charpentier, where a physician, immediately after visiting a patient having phlegmonous inflammation of the thigh, wishing to learn the condition of uterine involution in the case of his wife, then at the seventeenth day after her delivery, made a digital examination, and the result was she had fatal septicæmia. These, and many other

instances of apparent multiplicity of causes, are to be interpreted as showing that the one cause was in all, that the apparent causes were the bearers of the true cause.

An illustration of the consequences of a retained placenta fell under my observation during my recent service in the obstetric department of the Philadelphia Hospital. A woman was delivered of her child but the placenta not passing off in the usual time the interne, following the common, but I believe dangerous practice, a practice not to be adopted unless hæmorrhage demands such violent interference, introduced his hand into the uterus, and took away in fragments all that he could of the placenta, but fragments also were left behind; in three days she had an offensive discharge, then fever, abdominal swelling and tenderness, arrest of uterine involution; and the women lying on each side of her also had septicæmia. Plainly the second and third cases were examples of heteroinfection, but was the first autoinfection? No, the operator either carried the disease germs upon his hands, or, and this is more probable, they were borne in by the air admitted in his manipulations, and finding suitable soil for their development, infection followed.

But is not multiplicity of causes indicated by the different forms which the disease presents? In one case it strikes as with the terrible power and suddenness of the thunderbolt, and in another the malady is mild and brief, and in a third is protracted through many days, or even weeks. But scarlatina may kill in a few hours, or again be so mild as to be scarcely an indisposition; in some families it is a grave, in others a slight malady; some epidemics of the disorder are marked by great, others by small mortality. Yet the essential nature of the disorder is unchanged in its numerous and diverse manifestations. In puerperal septicæmia the disease may differ because of the quantity of the poison entering, the avenues by which it enters, the parts primarily or secondarily affected, and above all by the inherent susceptibility, the receptivity, the greater or less vital resistance of the subject.

It is hardly necessary at this day to insist upon the contagiousness of puerperal septicæmia. Woe to the man, woe to the households he enters as an obstetrician, who does not accept this important truth demonstrated by so many hecatombs of women perishing in childbed.

Single and contagious as is the poison of puerperal septicæmia, according to the belief of most, we are still met by the question as to its essential character. The parasitic nature of this poison is accepted by most obstetric authorities. Delore, *Traité Pratique de l'Art des Accouchements*, Paris, 1883, remarks that puerperal fever has for its primary cause the introduction into the organism of the puerperal woman of bacteria which produce septicæmia. Charpentier, in the second volume of his *Traité Pratique des Accouchements*, Paris, 1883, referring to the cause of puerperal fever, adopts the views of Pasteur, regarding this agent as a proto-organism, and this organism not being single, but existing in numerous varieties, the several forms of affections, of accidents observed in puerperal women are explained. Spiegelberg, in the last edition of his *Lehrbuch der Geburtshülfe*, states that everything tends to regard the spherical bacteria as the bearers of the poison, to look upon them as a *contagium animatum*. Kleinwächter, *Grundriss der Geburtshülfe*, 1881, refers to puerperal fever as an infectious disease depending upon a specific poison, the real bearers of the poison being low plant-like organisms found in putrid fluids. In a word, the doctrine most generally accepted to-day is that without microbes puerperal septicæmia is impossible. Further, the fever frequently observed at the time of the establishment of the milk secretion, so commonly known as milk fever, and by some called traumatic fever, is really a mild septicæmia; and so too phlegmasia alba dolens is simply a manifestation of septicæmia—in short almost all the affections of women in childbed have a septicæmic origin.

Maygrier, *Des Formes Diverses D'Epidémies Puerpérales*, Paris, 1883, referring to the fact that Pasteur found in the lochia of women suffering with septicæmia a very great number of low organisms, while in other cases he could by an examination of the lochia predict the invasion of the disease, the event verifying the prediction, and that the blood of women dying from the disease presented the same organisms, these microbia penetrating into the blood-vessels cause the infection, remarks, "But before Pasteur Delore in 1869, Orth in 1872, Heiberg especially in 1878, have seen numerous parasites in the lochia, and in the peritoneal exudates. Heiberg has traced them into the veins, and into the lymphatics." Fluids containing these microbes have been injected into the uterus, or into the peritoneal cavity of inferior animals, and septicæmia resulted.

To enter into the argument, and to answer the objections made to the Pasteurian theory, viz.: microbes come from the diseased organism, and not from without; they have no action, but are simply an epiphenomenon of the disease; microbes do not act directly upon the tissues or upon the blood, but indirectly by soluble septic products which are made at the expense of these same tissues—objections which have been so well met by Dr. Paul Bar, *Des Méthodes Antiseptiques en Obstétrique*, Paris 1883,—would involve too long a discussion. Besides, it is a question chiefly for those expert in microbiologic researches, and therefore I acknowledge my incompetence.

Passing from this general consideration of puerperal septicæmia, I will now present some illustrations of the disease as it occurred at the Philadelphia Hospital the first three months of the present year, during my service as a member of the obstetric staff of the hospital. In this time seventy-two women, including, however, one case of miscarriage at six months and a half, were delivered, and twenty of these had septicæmia, three dying. Such puerperal morbidity and mortality will not surprise any one who knows the wretched sanitary condition of the obstetric wards. In the winter months the wards are crowded; they are badly ventilated, without bath-rooms, and water-closets, the very walls diseased by the many epidemics of childbed fever, so that the poison seems to have found a permanent lodgment, remaining in

spite of disinfection, and defying antiseptics. But, I am happy to say, although this Carthage is not to be destroyed, new maternity wards are in process of construction, and when this is accomplished the percentage of disease and death among lying-in women forced to take refuge in the hospital, will be greatly lessened.

The first fatal case of septicæmia was a colored girl, sixteen years of age, unmarried, and a primipara. She was delivered on January 12 of a living female child weighing eight pounds, after a labor of nearly twenty-four hours; the presentation was pelvic. Her convalescence seemed to be uninterrupted until fourteen days after her labor when she complained of pain in the abdomen, and had some fever. The next day she was transferred to the fever ward; her pulse was then 120, and her temperature 102, the abdomen tender on pressure and somewhat tympanitic. The symptoms of peritonitis were well marked. No chill occurred at the beginning or in the course of the disease. In three days pleuritis was evident, and death took place on the first of February, the seventh day of illness, or the twentieth day of puerperality. The following were the post-mortem conditions as noted by Dr. Shakespeare, pathologists of the hospital.

(Post-mortem of M. P.)

Mahallah Price, colored, æt. 16.

External appearance.—Evidence of blister over epigastrium and lower aspect of each mamma. Shows abrasion of an area of about three inches square. Nothing else noticeable.

Thorax.—Very extensive pleuritic adhesions on both sides, consisting of recent, mainly dry lymph of a yellowish color. The same material also binds the lobes together. The thoracic cavity contains a considerable amount of serous fluid. The pericardial cavity also contains considerable fluid, and there are numerous minute ecchymoses on the parietal pericardium, especially near the origin of the large vessels, and extending along the anterior surface. The visceral pericardium, particularly on the anterior surface, shows similar ecchymoses.

The *heart* is of normal size, consistence and color. The right ventricle partly occupied by a clot mainly chicken-fat in character, which toward the pulmonary orifice assumes a fibrous consistence, and extends far into the pulmonary vessels. The left ventricle is of normal size and contains a very small clot, fibrous in character, which does not extend beyond this cavity. The valves and ascending aorta normal.

The left *lung* is completely solidified, but not appreciably swollen The cut surface appears smooth, semi-translucent and not at all granular. In the lower lobe there are one or two wedge-shaped areas characterized by a difference in color from the surrounding tissue, and in them are slight appearances of granulation. They are mainly superficial and probably embolic in origin. No emboli are seen in the vessels comprised in the area, yet the vessels occupy the central portion of these areas. No such appearances of embolism are noticeable in the upper lobe. The right lung shows the two upper lobes normal in appearance, as also the lower lobe, except that the latter is slightly congested and contains little air. The bronchial glands of right side contain some points of cheesy and others of calcareous degeneration. These glands are not softened. The glands on the left side are considerably softened, but contain no caseous points.

The *abdomen* contains considerable serous fluid, with many large floating flocculi, yellowish in color. Adhesions are numerous between the coils of intestine, omentum and abdominal walls, particularly marked over liver and pelvis. Adhesions are easily torn, consisting of recent unorganized lymph.

The *uterus* is about 5 inches in length, 3½–4 in breadth and 2 in thickness at the fundus. The external surface is covered with lymph, especially well-marked in the posterior cul-de-sac, and over the ovaries. No abnormal appearance is noticed in the walls of the uterus or in the lining of the uterine cavity.

The *liver* weighs 4½ pounds, somewhat enlarged, surface smooth where there are no adhesions. It is of a deep red color, and the capsule of Glisson readily strips. The gall-bladder contains but little fluid, and this of a dark, grumous character. No calculi. The right lobe thickened from above downward to the extent of about four inches. Cut surface natural in color, dark red, and presents no visible abnormality. The substance, however, is easily mashed and torn by the finger, but the organ is not flabby.

The *spleen* is but little, if at all enlarged, and weighs six ounces. Surface normal. Organ somewhat flabby, the pulp is dark red in color and somewhat lessened in consistence. No other noteworthy appearance.

Substance of the *pancreas* normal.

Kidneys of normal size and appearance. The capsule readily strips, leaving a smooth surface. The substance of the organ firm and not visibly altered.

Cause of death.—(Puerperal?) plastic inflammation of the serous cavities with left-sided pneumonia.

E. O. Shakespeare, Pathologist.

Here is a fatal septicæmia involving the great serous membranes which gave no indication of its presence until fourteen days after labor, and its advent was not marked by a chill—nature gave no cry of alarm. These facts are certainly remarkable. My friend, Dr. Shakespeare, expressed the opinion that such extensive disease probably indicated a longer duration than the record showed. Another point of some interest in this case is that the temperature never rose higher than 103⅘, and that elevation occurred just before death.

The second fatal case was a colored woman, 22 years of age, the mother of four children. Her labor, occurring at term, lasted a little more than six hours. She was doing well until the third day, when without any preceding chill, her temperature rose to 102. She became delirious the afternoon of that day, attempted to kill her child; jumped out of bed, running about the ward, and it was only after repeated doses of chloral she was quieted. I saw her the next morning, when she was quite rational, but she still had fever, the lochial discharge was scanty and very offensive, the uterus was tender to the touch and

larger than it should have been at the fourth day, and she was removed to the fever ward. That evening her temperature was $105^{3}/_{5}$; it gradually lessened until the evening of the day before her death, which occurred on the sixth day of the disease, it fell to 101, but rose the evening of her death to $106^{1}/_{5}$. Her pulse varied between 120 and 150.

The post-mortem was made by Dr. Formad, and the report of it is as follows:

Thorax.—No effusion in the pleura. Lungs highly congested and filled with œdematous fluid colored by decomposing coloring matter of the blood; otherwise natural. Pericardium contains some increase of fluid—also discolored. Heart very much softened, congested, and muscular tissue friable, giving signs of acute atrophy; otherwise size and condition of organ normal.

Abdomen.—Signs of a recent peritonitis, but not of a purulent character, the serous membrane being only congested, and no exudate of any kind visible. The mesenteric glands are all enormously enlarged, and upon section show cheesy infarction, and to some extent purulent contents. The lymphatic glands are also enlarged, some of them reaching the size of a walnut.

Uterus.—This is the size of a child's head, and on section the muscular walls show a thickness of about one inch. The mucous membrane is in a state of acute inflammation accompanied by gangrenous change. There appear to be some fragments of placenta with some necrotic change adherent to mucous membrane.

Ovaries.—These are normal.

Liver is in a state of acute yellow atrophy, being soft and friable. The parenchyma gives evidence of acute softening change. Gall-bladder filled with normal bile. Weight of liver 2 pounds 6 ounces. Spleen is completely disintegrated, being only a pulpy, semi-fluid mass, held together by the capsule. Kidneys completely softened by septic changes; otherwise normal in size. Rest of organs all softened, and give evidence of acute septic change. A good many of the changes must be attributed to post-mortem causes, the examination being made 30 hours after death, but the case is nevertheless undoubtedly one of septic poisoning, taking its point of departure from the gangrenous changes in the cavity of the uterus.

The third fatal case of septicæmia was a multipara, twenty-four years of age. She was taken in labor on the evening of the 23d of January; the left shoulder presented, the head being upon the right side of the mother's pelvis. I was called to the case, but it was after the labor had lasted nearly twelve hours, and very serious injury resulted from the delay, which was in part caused by an unfortunate accident. The patient was etherized immediately upon my arrival, and in a brief time and without violence podalic version was performed, and a dead child delivered; the placenta passed off in the usual time, and neither before nor afterward was there any unusual discharge of blood. Visiting her the next morning I found that the nurse who had been directed to use the catheter, had failed to draw any water from the bladder, and introducing my finger into the vagina, I found quite a large opening through the vesico-vaginal wall. I never dreamed, however, of the more serious mischief also resulting from the delay in delivery, which the post-mortem revealed. But not to anticipate, the patient's temperature twenty-four hours after labor, was $100^{4}/_{5}$, but the next morning it had fallen to $100^{1}/_{5}$, rising, however, that evening to 101. Great irritability of the stomach began the second day after delivery, and continued with only slight occasional abatement; the third day she had a chill at 4 A. M., and the fourth day another chill at 8 A. M., her temperature then rising to 104. She had great tenderness when pressure was made upon the uterus, and over the right broad ligament; the uterus was very little below the umbilicus, and the lochial discharge was very offensive; entire absence of milk secretion. She had occasional attacks of diarrhœa; her face was pinched, anxious, generally bathed in perspiration, and had a sort of leaden hue. The sixth and seventh days also a chill occurred, and on the eighth she died. The fourth and fifth days of her illness her temperature was only 99, but the sixth it rose to $102^{1}/_{5}$, and on the morning of the day of her death was a degree higher.

February 1, 1884. Maggie Dougherty, aged 26, white, autopsy 26 hours after death.

External appearance.—Considerable lividity and mottling of the skin of the dependent portions of the body, but not of the upper, it being blanched.

Thorax.—Pleural cavities normal. Pericardial cavity contains half an ounce of serous fluid. Pericardium normal.

Heart.—Some slight congestion of the small vessels at the root of the large cardiac vessels. Of normal size and normal external appearance, and of flabby consistence. The ventricles and auricles contain dark, clotted blood; no abnormality otherwise, except a small, somewhat tough fibrinous clot in the right ventricle.

Lungs.—Normal, except the lower lobes, which are much filled with hypostatic blood.

Abdomen.—Cavity contains a considerable amount of puriform fluid. Both the visceral and parietal peritonæum show general congestion, and some points are covered with lymph. In the iliac fossæ the adhesions of recent lymph are quite extensive. The purulent collection and lymph are quite marked in the pelvis.

Uterus.—Of flabby consistence, about six inches in length, four inches in breadth, and averaging an inch in thickness. On exposing the cavity, it is found that the mucous membrane and uterine wall at the cervix are extensively degenerated, of a dark gangrenous appearance, and on the left side there is a very extensive rupture, involving the whole length of cervix and lower portion of the body of the uterus.

Liver.—Pale, smooth surface, and flabby. Capsule of Glisson not abnormal, but the cut surface, notwithstanding its flabbiness, shows an increase of consistence. The finger is forced into it with some difficulty. Somewhat buff in color. The lobules are not distinctly marked. It weighs 2¾ pounds.

Spleen.—Pale in color, and weighs 4½ ounces.

Capsule smooth; pulp light-colored and only slightly softened.

Kidneys.—Nothing abnormal.

Cause of Death.—Acute puerperal peritonitis, probably of septicæmic origin.

E. O. Shakespeare,
Pathologist.

Certainly this post-mortem greatly surprised me by the revelation of a rent in the uterus. Indeed, in thinking over the history of the case, knowing that an opening occurred soon after labor in the vesico-vaginal wall, as a consequence of the long continued pressure, it seemed to me possible that the rupture of the uterus had a similar origin, and like it occurred after labor. In conversation with Dr. Shakespeare he admitted the possibility of this explanation. There had been no failure of uterine contractions, no severe, sudden suffering, no hæmorrhage, no indication of shock. Nevertheless rupture of the uterus may occur without any of these symptoms. Hervieux, *Maladies Puerperales*, remarks that in some cases the uterine rent is made silently—no pain, no complaint, no crisis; and if a post-mortem is made one is astonished to find a rupture has occurred. He further gives in illustration a case that occurred to Dubois, and one in his hospital service, under the care of Tarnier; in each of these patients a more extensive rupture was shown at the post-mortem than occurred in my patient, and yet there was not the least suspicion of it during life.

Admitting this to have been a rupture, and not the result of prolonged pressure with subsequent sloughing, should it be classed among the spontaneous, or the traumatic ruptures? I incline to the belief that it was traumatic, and that it was done during podalic version. Those who are familiar with Baudl's explanation of uterine rupture beginning in the neck, can readily understand how in this case of impossible labor the struggle between cervix and body had gone on until the wall of the latter becoming thicker and stronger, that of the former was thinner and weaker so that the additional strain made upon it, in even the gentle introduction of the hand, caused it to give way, or it might have given way by the sweeping of the head, or a foot now brought down, against that part which had been most injuriously pressed upon. Certainly I have learned the danger that may attend podalic version where some hours have passed with the shoulder wedged in the pelvic entrance. Baudl very well remarks that the practitioner is placed between Scylla and Charybdis in such a case—rupture is liable to occur at any minute from a violent contraction of the uterus, and it is liable to occur from his intervention, especially in performing version.

I shall not give in detail any of the seventeen cases of septicæmia in which recovery took place. In three of them no chill was observed at the beginning, or in the course of the disease, while in others not only the initial chill occurred, but repeated chills, the intervals being irregular, were noted during the illness. In most the milk secretion was arrested, in some only lessened. The lochial discharge was with one or two exceptions, offensive. The constant symptoms were fever, abdominal pain, and arrest of uterine involution—in some cases the uterus became notably enlarged at the beginning of the disease. The highest temperature observed was 106; one of the patients showing this evening elevation, the next morning had a temperature of only $100^{2}/_{5}$—nevertheless it rose again in the evening to 102, the next evening to 103, and her illness continued for two weeks longer.

Another case of special interest was one in which the first elevation of temperature occurred the second day of puerperality immediately after an attack of epilepsy, a disease which she had suffered with for years, the attacks, however, occurring at long intervals.

In another patient in whom the eruption of measles appeared on the eleventh, and who was delivered on the twelfth of January, the septic poison seemed to first manifest itself on the sixteenth by symptoms very similar to those often observed in pernicious fever—copious perspiration, vomiting and purging, great prostration, cold extremities, pinched expression, and pulse exceedingly frequent and feeble.

Some of the patients had albuminuria, but as examinations were not made in all cases into this condition, I omit other reference to it.

The treatment was supporting, antipyretic and antiseptic. In carrying out the latter the rule was to give vaginal injections in all cases where the lochial discharge was offensive every four hours, and intra-uterine injections morning and evening, the material for injection being either a three per cent. solution of carbolic acid, or a solution of corrosive sublimate one part to 2,000 of water, or a mixture of equal quanties of these.

In conclusion, let me ask the members of the Section as to the prophylaxis and treatment of puerperal septicæmia, which their experience has proved the most useful.

MICROSCOPIC EXAMINATION OF THE DISCHARGES BY DR. SHAKESPEARE.

My Dear Sir:—I regret much that you have not received an earlier response to your note requesting some statements of my examination of lochial discharges for the presence of bacteria. The examinations I have had the opportunity to make, although not extensive, appear in the main to confirm the opinion of Doleris as to the association of swarms of certain bacterial forms and the occurrence of fever.

As a rule, I have noticed both in those cases apparently progressing normally at the time of examination of the lochia, but which subsequently developed fever, and in those cases which, early after parturition and at the time of examination, were the subjects of febrile disturbance, that certain forms of bacteria were present in great numbers, viz.:

Swarms of micrococci in zöoglœcia masses; immense numbers of diplo-cocci; chaplets of micrococci in strings of from four to eight; and rods of a peculiar form.

Whether these bacteria have aught to do with the production of puerperal fever, or can be invariably relied upon as a sign of impending danger, my observations are as yet too limited to determine.

Yours truly, E. O. Shakespeare.

DISCUSSION.

Dr. Seymour, of Troy, New York, referred to two cases bearing upon the subject of the paper, which were reported by him and printed in the April number of the *Obstetrical Journal* for the present year.

Dr. Robertson, of South Carolina.—Mr. Chairman: I would like to make a few remarks upon this subject. I have been practicing medicine for forty-four years amongst a population where you would suppose there would be septicæmia—in the negro cabins, where they have nothing but midwives. Such a thing as sepsis was never heard of until a short time ago I had a case, and I found a woman with a little fever, and I asked the midwife if she had practiced antisepsis, and she said no, that she had sent for "Auntie Sepsis," but she would not come. That is what she knew of antisepsis.

I have never found a case of puerperal fever in the negro population. If sepsis is such a horrible and dreadful bugbear, why should not we have it, when there is nothing to prevent it when we have nothing but ignorant midwives? and yet I have never seen a case of it among them. I have seen puerperal convulsions, but not one that I know of ever having had puerperal fever, or septicæmia. And where else would you expect to find it? If you read the account of these New York physicians, where it is necessary to wash the walls, inspect the curtains, and inject the women every three or four hours, you might find antisepsis there.

Gentlemen, I think there is a regular bacteriomania prevailing, and there must be something done to arrest it; or else I do not know what will become of the poor women if we have to have a nurse to go around and inject them every three or four hours, and wash the walls with bichloride of mercury and carbolic acid, and all those things. We will have to have some trained nurses.

Dr. Sutton, of Pennsylvania.—Mr. Chairman, this paper is so eloquent, so up to my own notions on the subject of septicæmic troubles after labor as well as after operations in the vagina, that I cannot pass it by without a word of commendation. I agree with Dr. Parvin that to say that puerperal septicæmia is autogenetic, is simply to acknowledge our ignorance. I believe that many a man and woman, going to attend a woman in confinement, carry her death warrant under their finger-nails. I believe that when a man has a case of puerperal septicæmia, he has not to look about him for causes that exist in the cellar or other parts of the house. But let him examine his own self, his hands and clothes, and all his surroundings, and see if he cannot trace the carrying of that poison to the woman. And again, if he has one case, let him stop until he is certain that he has purified himself. There is one precaution against puerperal septicæmia that every man and every woman can take, and that is making sure that his or her hands are perfectly clean before they are introduced into the vagina or uterus of a woman, to make sure that the nails be pared, the arms and hands should be washed with turpentine and subsequently with soap and water or some alkaline solution. I believe if this precaution is taken and the bedding and other surroundings of the patient are clean, the chances are that the patient will escape.

Dr. Ross, of Pennsylvania.—Mr. Chairman: I simply rise to ask a question. In all cases that we see of puerperal diseases, we have it in a distinctly intermittent form. Now the question I want to ask is, are the diseases, or the parasites of the same kind? Is there a difference between the septicæmia of puerperal fever and any common septicæmia from other causes? I simply desire to ask the question.

Dr. Milner, of Chester, Pa., being called upon by Dr. Sutton.—Mr. Chairman: I remarked to Dr. Sutton that I thought I was to blame for not having taken proper precaution in some of my cases. Some of the cases of puerperal fever were due to our enemy along the river, but I think that some of the cases I have been to blame for. I did discover an old glove that I think had something to do with it.

Dr. Chancellor, of Virginia.—Mr. Chairman: I do not propose to speak of any experience I have had of puerperal septicæmia, but I am here, sir, as a learner. I may say that I have not had any large experience in the terribly fatal cases. I do not know whether it is from the great precaution that I use, as every physician ought to use and possibly does use; but I can just state this fact, which may carry with it some suggestion—that I never made a digital examination in the lying-in room without disinfecting my hands. As my old friend and valued preceptor, Dr. Charles Meigs, of Philadelphia, used to say, "No man should go to a lying-in patient without disinfecting his hands, or make an examination without having thoroughly washed and cleansed his hands, because the very last man or woman he might have shaken hands with might have infected his hands." It is upon that principle I have acted in the last thirty-five or forty years that I have been in general practice.

But I did not rise to speak of any practice of my own, for my experience has not been large; but to ask of Dr. Parvin, who has given us this able paper, to give us his experience in certain antiseptics. There are a great many of these antiseptics coming up now—"germicides," as I may call them—and I have the right to ask the doctor to answer one or two questions in regard to them—carbolic acid, the bi-chloride of mercury, turpentine (which has recently come up as a disinfectant), or the more recent, probably, new remedy of listerine. Will the author please favor the Section with his experience in regard to some of those remedies with which he is so familiar?

Dr. Parvin.—Mr. Chairman: I find that while I put questions the gentleman there (Dr. Chancellor) is putting questions to me, which is something that I did not quite expect. But I can say that, as to the use of listerine, I have never tried it. The disinfectants of which I have any practical knowledge—or the "germicides," I would rather say—are carbolic acid and corrosive sublimate.

I might say that as to the puerperal illness of septicæmia, I was induced to reject vaginal injections. I used them twice a day in several cases, and yet those very cases were just as liable to have septicæmia, if

not more so, than those in which the vaginal injection had not been made. I have seen within a few hours the temperature fall from 103 to 101 after a free injection of corrosive sublimate, and I have seen the offensive lochial discharge disappear; and I would rank as the most valuable treatment of septicæmia the use of germicides in the vagina or uterine cavity.

ON SUDDEN DEATH IN LABOR AND CHILDBED.

BY WILLIAM THOMPSON LUSK, M.D., OF NEW YORK CITY.

Read before the Obstetrical Section of the American Medical Association, May, 1884.

On the first of January of the present year at six o'clock in the morning I received a summons to attend a case of confinement. The patient belonged to the clientéle of Dr. Bangs, but owing to the illness of one of his children with scarlatina, he had from conscientious motives, requested the family to call upon me in case the labor should occur before the recovery of his child should place him at liberty to resume his midwifery practice. The patient was a very beautiful young woman, a primipara, 23 years of age, to all appearances in the enjoyment of excellent health, and full of happiness at the prospect of becoming a mother. In the bright sunshine of the early morning there was nothing to suggest the tragedy with which the day closed. The examination made upon my arrival demonstrated the beginning of cervical dilatation, and a head presentation. The parts were, however, at that time excessively sensitive to the touch. The pains recurred at intervals of ten minutes. When I entered the room the patient was pacing the floor.

Noticing that she did not, as is usual, sit down when her pains seized her, I questioned her as to her reasons, and was told in reply that she was determined that no sound from her lips should betray her sufferings, and that she found it easier to support the pangs of labor when in motion than when at rest. I likewise learned that with the view of carrying out her resolution, labor having begun late in the previous afternoon, in the place of going to bed she had kept upon her feet throughout the entire night. To my repeated suggestions that she would tire herself out, she assured me that I need not worry, as she felt no apprehensions about herself, and indeed her cheerful spirits and bright color seemed abundantly to support her hopeful words. The labor, however, dragged along slowly. The head dilated the cervical canal without the formation of the bag of waters, and, though the head was low in the pelvic cavity, at eleven o'clock the dilatation of the os externum had made but slight progress. I then told my patient that I thought, by a slight manœuvre, I could shorten materially the duration of the labor. Owing to the sensitiveness of the genital canal, to which I have already referred, I gave her enough chloroform to dull sensation, but not enough to abolish consciousness. With two fingers I next lifted the head from the cervical walls so as to allow the bag of waters to form in front of the child's head. As I had anticipated, dilatation speedily followed, and, in about half an hour, the head, freed from the cervix, rested on the perineal floor. At noon I suggested to my patient that she must be tired, and that as there was no longer any difficulty or danger from the use of forceps I would advise her to allow me to hasten the birth of the child. To this she energetically answered "that she wished the glory of having her baby herself;" and as in reality she seemed to be making fair progress I unfortunately acceded to her wishes.

From this time on the patient remained in bed. Between 1 and 2 P. M., on going to the bedside to make an examination, I noticed that the color had left her face. Although straining energetically, she manifested no signs of suffering. On asking her whether she was in pain, she replied in a dazed way, "I don't know; I suppose I am; I don't know whether I am or not." After hastily making preparations for possible post-partum hæmorrhage, I once more gave chloroform, applied the forceps, and without difficulty extracted a child weighing between seven and eight pounds. The child was pallid, and breathed feebly at first but soon cried lustily. Before the forceps were applied meconium appeared at the vulva. The uterus was like an empty sac, and the anticipated hæmorrhage was not long delayed after the removal of the placenta. A hot water vaginal douche quickly arrested the flow, but not until after a couple of pints of blood had been lost. Meantime the room had grown dark and, as the curtains were raised to enable me to see the face of my patient, it seemed as though the stamp of death was upon it. The extremities were cold, and at the wrist no pulse could be felt. Still consciousness was not lost as the patient responded to questions, and manifested slight pain when brandy was injected under the skin. The respirations were quiet and undisturbed. Under the continued use of restoratives the color returned to the face. The patient began to complain of thirst, and begged for a goblet of water in place of the teaspoonful of fluid administered to her at short intervals. She likewise begged to be allowed to turn upon her side. In spite of the extreme feebleness of the radial pulse, the condition of the patient at seven o'clock was such as to inspire me with the expectation of her recovery, so that, placing her in the hands of my friend, Dr. Anderton, I went down stairs to dinner. In my absence she suddenly turned in bed. For a moment the heart ceased to beat, and, though she rallied for a time, by 7:30 P. M. I was called hastily to her room, arriving just in time to witness the final breath.

In prefacing his remarks upon the class of cases to which the sad history I have related belongs, Winckel says, "He who has once seen a puerperal woman happy and joyous in the expectation of soon leaving her couch, and then directly afterward has found her a corpse, will be able to comprehend the truth of Hervieux's words: 'In the twinkling of an eye all the calculations of prudence are set at naught; the most untiring vigilance, the best established rules of hygiene, all the varied resources and the ingenious combinations of therapeutics are shattered against an

invisible rock.' " And then Winckel adds: "The only thing which remains for the physician to do after such a depressing occurrence is to seek out the cause of the sudden death."

But when the conscientious physician seeks for light concerning the cause of the tragedy in which he has played the part of a powerless spectator, he will find but scanty guidance in the few brief lines devoted to the subject in the systematic treatises upon midwifery. He will learn in later works that, apart from such rare accidents as cerebral apoplexy or heart rupture, or fatal endings from hæmorrhage, from eclampsia and acute septicæmia, the causes of sudden death are to be found in the entrance of air into the circulation and in pulmonary embolism; and to these, in older works, he will find the admission added that death may be due to exhaustion or shock; but in spite of the very copious clinical material scattered through journals and society reports, there will be but little information concerning the pathology, the symptoms, and the mechanical conditions which respectively belong to the various processes to which death is attributable. For convenience of reference, but with no pretense at originality, I have thought it might be profitable to arrange in orderly sequence such facts bearing upon the question as have come to my notice in the inquiries which my own case has rendered it obligatory upon me to institute.

THE ENTRANCE OF AIR INTO THE CIRCULATION.

The passage of air from the uterine cavity into the circulation is rendered possible by the presence of open sinuses, or of sinuses closed by soft, easily detached thrombi. These conditions are always present previous to delivery in the case of partial separation of the placenta, and in the puerperal state, especially in the latter where, owing to debility, or the undue prolongation of labor, the expulsion of the ovum has been followed by imperfect retraction.

Air may be forcibly driven into the uterus by means of the uterine or even the vaginal douche. For this reason the syphon syringe ought to be discarded from midwifery practice. It is never a safe instrument, and I have prohibited its employment in all the public institutions with which I have been connected. The objections to the continuous stream furnished by a vessel placed at a height above the patient, based upon the insufficient force of the current, are purely theoretical. It is not necessary that the nozzle of the syringe should be introduced directly into the uterine cavity for accidents to occur. When the vaginal douche was much in vogue as a means of inducing labor after the prescription of Kiwisch, not a few instances of sudden death were reported as the result of its employment. In a case reported by Wiener[1] in Spiegelberg's clinic, where the tube of the douche apparatus was free from air, collapse, from which, however, the patient recovered, resulted from the hydrostatic pressure forcing air previously introduced into the vagina up into the uterine cavity. If the method of Kiwisch is selected to induce labor, the stream should at first be introduced with great gentleness.

Less familiar than these cases of forced air injection, are instances of the spontaneous entrance of air into the uterine sinuses. Every day gynæcological experience teaches us the mechanism by which this phenomenon may be produced. In great part the modern advances in the treatment of the diseases of the genital canal result from the discovery we owe to Sims that, in certain body postures, the intra-abdominal pressure is reduced to such a degree that, provided the vaginal orifice be dilated by the speculum or the finger, air enters and distends the canal. The three positions which most favor this occurrence are, respectively, the knee-chest, the latero-prone and the lithotomy positions. In the non-puerperal conditions, owing to the closed canal of the cervix, the action is confined to the vagina. But in childbirth the sudden rupture of the membranes which have previously distended the vagina, or the rapid extraction of the child, may permit the ingress of air into the uterine cavity itself. Such an accident may not of necessity do harm, or the harm may be limited to the production of endometritis, but still there are recorded cases in which the occurrence has been followed by almost instant death.

In this category may be mentioned a very striking case reported by Kézmarsky,[1] of Budapest. The patient was 36 years of age, and in labor for the fourth time. An excessive amount of amniotic fluid was recognized. The patient entered the hospital at 10 A. M. At 3 P. M., as she lay upon her left side, the bag of waters was found protruding from the vulva. Spontaneous rupture occurred, and a gallon of water was discharged. Five minutes later the patient suddenly threw back her head, gasped a few times for air, the face became livid and respiration was arrested. In scarcely two minutes the clinical assistant, Dr. Liebmann, was at her side, but the pulse was extinct. An asphyxiated child was extracted with forceps, and the expulsion of the placenta followed during the tying of the cord. Meantime the heart had ceased to beat, and the woman was dead. At the post-mortem 20 hours afterward pale, reddish-brown blood, mingled with bubbles of air of large and small size were found in the veins of the uterus, in the vena cava inferior, in the left side of the heart, and especially at the orifice of the pulmonary artery. The lungs were pale, anæmic, and contained a small quantity of frothy serum. In the vena cava the blood was separated into distinct columns by intervening layers of air. Kézmarsky's explanation of the fatal issue is as follows: The patient lay upon her left side with the knees drawn up in very nearly the Sims position, with the vulva elevated above the concavity of the abdomen. As the membranes ruptured there was sudden diminution of the intra-abdominal pressure, so that the air passed through the open vulva between the collapsed membranes and the vagina to the uterus. The ensuing retraction of the uterus forced the head to the os externum, and caused partial placental sep-

[1] Wiener. Zur Frage der Künstlichen Frühgeburt, bei Eugéne Becken. Arch. für Gynæk. Vol. XII, p. 94.

[1] Kézmarsky. Ueber Lufteintritt in die Blutbahnen durch den puerperalen Uterus. Arch. f. Gynæk., Vol. XIII, p. 200. To my indebtedness to this paper I herewith make my cordial acknowledgments.

aration. The next contraction caused the intra-uterine air to escape by the only channel that was possible, viz.: by the open mouths of the placental veins.

The aspiration force of the uterus in the knee-elbow position is thus illustrated by Hegar,[1] who, misled, he says, by the brochure of Ludwig, made some experiments with labor in that position. In one case delay in the expulsion of the trunk followed the birth of the child's head. Friction was employed upon the fundus, and then the body was drawn out by gentle traction made in the axilla. As soon as the child was born a stream of air rushed into the uterus with a gurgling sound. The patient was then placed upon her back, and the air, blood, and placenta were pressed out. The patient subsequently was attacked with endometritis and metro-peritonitis, from which, however, she recovered.

By way of warning I shall take the liberty of adding to these two cases the following, reported by Cordwent in the St. George's Hospital Reports (vol. vi):

At the patient's request she remained during labor in the standing position. Suddenly the child was precipitated to the ground, dragging the entire placenta with it. Immediately thereafter a gurgling sound was heard. The woman remained standing as before, and holding at the bed-post. Then she cried out: "I see nothing; I feel faint; put me to bed." Her request was carried out, but she died instantly. Air was found in the coronary artery of the stomach, the right side of the heart was slightly inflated, and air escaped from the punctured auricle. Here Kézmarsky suggests that the sudden recession of the uterus after delivery exercised a suction force which drew the air directly into the uterus and into the uterine veins. With the body bent forward in the upright position Schatz has demonstrated the diminution of the intra-abdominal pressure.

These histories I present not as isolated instances, but as typical, and carrying with them the suggestions for the adoption of preventive measures.

The post-mortem examinations in these cases showed but little blood in the left side of the heart, frothy blood from the cut surfaces of the uterus, air in the uterine veins, the vena cava, the right side of the heart, and at the orifice of the pulmonary artery; the lungs were anæmic and contained much frothy serum; the brain was pale and infiltrated with serum. And corresponding to these conditions the hands were cold, the pulse scarcely perceptible, the face blue and livid, consciousness was lost, and the respiration was labored and jerky, with all the symptoms of intense air hunger.

In the case I have reported it is not possible in the absence of a post-mortem examination absolutely to exclude the entrance of air into the uterine vessels, for the vaginal douche was employed, and the excessive uterine relaxation might have conduced to the spontaneous aspiration of air, still such an event was improbable, for the douche was used with every known precaution, and the dorsal position was unfavorable to the direct entrance of air into the genital passage. But the special reasons for discarding such an hypothesis were first the quiet, peaceful, and undisturbed respirations of the patient, and the fact that death from air in the veins is usually sudden. When life is prolonged for a few hours the dangerous symptoms as a rule subside, probably from absorption of the air.

[1] Hegar. Sangphänomene am Unterleib. Arch. . Gynæk., Vol. IV, p. 535.

ON THROMBOSIS AND EMBOLISM.

From this discussion I propose to exclude cases of phlegmasia dolens in which a detached portion of the thrombus in the femoral vein is suddenly carried to the right side of the heart and thence to the pulmonary artery, as this accident is one familiar to all practitioners, and occurs but rarely, if timely prophylactic measures are instituted. Death in such instances, though sudden, does not take place without warning, and lacks the element of unexpectedness which properly belongs to the class under immediate consideration. There are, however, two generally accepted forms which require closer study, viz.:

1. When the placenta is partially detached during labor, or the uterus after the birth of the child does not properly contract, sudden hæmorrhage followed by syncope or marked weakening of the heart's action may lead to the formation of large soft thrombi in the uterine sinuses, which by movement, by uterine action, or by the douche, may be set adrift and, carried by the vena cava to the left side of the heart and the pulmonary vessels, may cause extreme dyspnœa and death. That some of the reported cases of death from entrance of air into the circulation, where the diagnosis was not confirmed by a post-mortem examination, belong in this category, is inherently probable. I must, however, express my regrets that I have been unable to find a history which affords indubitable proof of such an occurrence.

2. It has been assumed, though not without question, that owing to the large proportion of fibrinoplastic and fibrinogenic substances in the blood during pregnancy and childbed, it is possible, when the heart's action is feeble, for spontaneous coagulation to take place in the pulmonary artery, and cause dyspnœa and death by obstruction of the pulmonary circulation. This theory, originally broached by Meigs, has been warmly supported by Playfair and Barker. Clinically, many striking facts have been adduced in support of this view. Playfair argues that when dyspnœa precedes phlegmasia dolens, the same causes which have led to thrombosis of the femoral vein had antecedently been at work in the formation of coagula in the pulmonary artery. But the post-mortem evidence of such a connexus is not conclusive. Dr. Mary Putnam Jacobi reported to the New York Pathological Society a death which occurred in a primipara five hours after childbirth. Two hours after the delivery was completed, the patient complained of præcordial oppression and dyspnœa. These symptoms continued to increase until the fatal termination. No lesions whatever to account for these symptoms were found at the autopsy. Her own opinion that the clots found in the two sides of the heart were formed subsequently to death,

was sustained by Dr. Janeway and other members of the Society who examined the specimen she presented. In a case reported by Dr. Playfair of sudden death occurring in a rheumatic patient, which he referred to thrombosis of the pulmonary artery, Drs. Wilks and Weber, of the London Pathological Society, reported upon the specimen as follows: "The characters of the clot are such as are not very rarely seen in cases of slow death, and there is nothing in its appearance to lead us to the belief that the clot was the cause of the death; in fact, judging simply from the specimen before us, we should have considered that it resulted merely from the diminution and gradual cessation of the heart's action." (Path. Trans., vol. xviii). Nor is it possible, when we recall the frequency with which thrombosis of the uterine veins precedes that of the veins of the thigh to be sure, in the absence of an autopsy, that the dyspnœa observed might not have been due to an embolus from a clot formed in a uterine vessel. Personally, I am far from willing to deny the possibility of Playfair's hypothesis. I only wish to state that so far as the evidence goes it lacks the positiveness of a scientific demonstration. Savage, in his reply to a paper on "Puerperal Thrombosis and Embolism," read by Playfair before the London Obstetrical Society (Trans., vol. xvi), while questioning the doctrine of primary thrombosis of the pulmonary artery, gives Virchow as his authority that "any of the few minor cardiac veins opening into the right auricle may be the seat of the primary thrombus, and give rise to a large secondary thrombus within the auricle," a fact which, if admitted, furnishes standing-ground for Playfair, and answers the objection that, excepting in the death agony, the force of the current in the pulmonary artery is such as to prevent spontaneous coagulation from taking place.

NERVE EXHAUSTION AND SHOCK.

Twenty years ago these two pathological states played a conspicuous part in the etiology of sudden death in childbirth. Now the fashion has changed. Such terms as "nervous apoplexy," or "idiopathic asphyxia," belong to an almost forgotten nomenclature. And yet none the less the necessity remains to account for a class of cases in which death takes place without recognizable organic lesions.

Instances of death attributed to heart-paralysis are to be found in the collections of McClintock[1] and Mordret[2]; but to these objections have been made either that the post-mortem confirmation of the diagnosis was lacking, or that the examinations were wanting in the completeness necessary to shut out other possible causes of death. Baart de la Faille,[3] however, has more recently collected thirteen cases of collapse in which the occurrence of embolism and the entrance of air could with every probability be excluded. Cases similar to my own, where the absence of all symptoms of pulmonary obstruction furnished certain evidence that the fatal ending was due neither to embolism nor to air, may be found scattered through journal literature. As I write I find in the April number of the *American Practitioner* an account by Dr. O. T. Schultz in which an enfeebled patient was seized with deadly pallor and other signs of shock immediately after a precipitate labor occurring while the patient was at stool, the patient dying two hours later without dyspnœa.

Certainly in the absence of the visible lesions, or the characteristic symptoms of the conditions to which death in childbed is usually referred, we have the right to attribute the melancholy issue to the same causes which outside of childbed produce identical phenomena. It would be impossible to find in the annals of surgery a more striking example of the features of shock than those presented by my patient. The pinched features, the eyes sunken and surrounded by dark rings, the marble pallor of the skin, the hands and lips blue, the extremities cold, the sweat upon the brow, the thready, scarcely perceptible pulse, the shallow but not anxious breathing, with the closed sphincters, and with consciousness and sensibility preserved, present a complete picture of the torpid form of shock. As time passed by the erythetic symptoms followed; the face, with the exception of the mucous membranes, became reddened, beguiling me with false hopes; the eyes brightened, the patient became restless, bade her friends good-by in anticipation of death, and complained of constant thirst, while at the same time the pulse was too rapid to be counted, and the skin, in spite of artificial heat, never regained its normal temperature.

Modern pathological investigation refers the phenomena of shock to a reflex paralysis of the vasomotor, and especially of the splanchnic nerves, whereby the great mass of the blood is withdrawn from the surface, and collects in the large trunks of the cœliac, the mesenteric and the renal veins. Hence the skin becomes cold and is devoid of color, save at the points where a bluish hue is imparted by the stagnant blood still lingering in the veins; the muscles deprived of blood became enfeebled; and the empty vessels of the brain explain the sluggish intelligence, the nausea, the vomiting and the indifference of the patient; finally, during the diastole, the heart, pale and contracted, receives but little blood, and the radial pulse fades to nothingness, because a corresponding small amount of fluid is propelled during the systole into the arterial vessels.

From works on military surgery we learn that it is in the defeated army among homesick soldiers, at the close of a wearisome war after great exertions and deprivations, that shock is developed in its severest forms; that the finer the organization, the more readily the manifestations occur; that they are promoted by sudden losses of blood, and are in a special degree evoked by abdominal injuries.

It certainly would be singular if similar conditions in childbed were not followed by similar results. After prolonged labor, the woman has her nervous system depressed by pain, starvation, and deprivation of sleep. The sudden emptying of the uterus is followed by a recession of blood to the venous trunks of the abdomen. Hæmorrhage subsequent to parturition is followed by syncope, and the wonder is, not

[1] McClintock. Dublin *Med. Press*, 1852.

[2] Mordret. Mem. Acad. Med., 1858.

[3] Baart de la Faille. I have only had access to the synopsis of these cases to be found in the Mon. Schr. f. Geb. Kunde. Vol. XXV, p. 318.

that the circulation should occasionally show the evidences of marked, and even fatal disturbance, but that the nervous system attacked from so many directions, should, as a rule, triumph over the adverse forces. In the old days of torture, shock often mercifully put an end to the victim's anguish. Women in childbirth are at times subjected to pain exceeding that of the rack and the thumb-screw. Now it is not sound pathology to ignore these facts, and to banish as unworthy of consideration a well established pathological condition, simply because in the days of ignorance the terms exhaustion and shock were indiscriminately employed to explain a multitude of cases, which, with our present enlightenment, we know are due to the entrance of air into the circulation and to pulmonary embolism. As the nervous organization of women loses in powers of resistance as the penalty of a higher civilization and of artificial refinement, it becomes imperatively necessary for the physician to guard her from the dangers of excessive and too prolonged suffering. Especially I would raise my voice in warning against the current opinion that the length of the first stage of labor before the rupture of the membranes is a matter of indifference, a teaching which I believe has cost the lives of many women; in a few, death resulting from shock; in more, the exhausted condition in which the woman is left after childbirth rendering her an easy prey to the perils of the puerperal state.

THE THERAPEUTIC USE OF MINERAL WATERS.

BY NORMAN BRIDGE, M.D.,

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It is always a question how much of the benefit experienced by invalids who visit springs and water cures is due to the water and how much to the change of air, scene, occupations, diversions and living. Doubtless both are important. That much is due to the change must be evident to any one who has observed the remarkable effects upon a chronic invalid of a vacation from effort and a journey from home. A few weeks spent out of the usual routine of cares and perhaps drudgery, in rest and amusement, will nearly always put new life into the chronic invalid not yet past recovery or improvement. But the water drank and the baths taken are often, and may nearly always be, of great advantage to the sick. Invalids make all sorts of mistakes in the use of both, often drinking too much or too little water, and taking too many baths or too few, or at improper times and in the wrong way. But, with all their mistakes, they receive a balance of positive benefit whose value it is impossible to calculate. Moreover, they receive benefits that no one from a study of the chemical analysis of the waters would expect. Nor can the help derived always be explained by any known effects of the chemical ingredients of the water in any doses or taken in any way. Artificial compounds made to imitate as nearly as possible the composition of the natural waters have frequently failed utterly to produce the same effect on the sick.

Mineral waters are therapeutic agents; they cannot all be used with benefit in the same way nor in a given state of system, and care and judgment are required in their use as in that of other therapeutic agents.

The different kinds of mineral waters. Waters may be classified as well as foods or drugs or clothes, but none of the classifications in vogue are entirely satisfactory. Waters in which the alkaline carbonates predominate are called *alkaline waters.* There is usually the greatest proportion of the carbonate or bicarbonate of sodium; in lesser quantities are the corresponding salts of potassium, calcium and magnesium. Other elements may enter which vary the therapeutic capabilities of the water, as sulphate of sodium and potassium, iron, etc. The milder waters of this class are diuretic in their effect, without irritating the kidneys or urinary passages. Of such springs are the Ems, Vichy, Apollinaris.

Saline waters, so-called, are mostly alkaline waters, but contain chloride of sodium in marked quantity. They affect the organism much as the pure alkaline waters do, only if the common salt is in large proportion, the waters are cathartic. The Saratoga springs —a dozen or more in number—are of this class, as are the Kissingen, the Selters and the springs of Manitou, Colorado.

Purgative waters contain the alkalies and the common salt in varying proportions, and in addition, Epsom or Glauber's salts or both, and in quantity sufficient to make them more or less cathartic. Of such are the Carlsbad in Bohemia, the Crab-Orchard in Kentucky, the Hunyadi-Janos in Hungary, and the Pagosa in Colorado.

Chalybeate waters contain, among many other ingredients of differing value, iron in tonic quantity. The Sweet Chalybeate Springs of Virginia, the Pyrmont of Germany, and the St. Moritz of Switzerland are examples.

Sulphur waters, many of them, resemble very closely waters of the other classes named, but they are distinctive in containing sulphur in the form of sulphuretted hydrogen, or sulphuret of sodium, calcium, potassium or magnesium. The Blue Lick Springs of Kentucky, and the Aix-les-Bains of France are good examples of this class.

Hot springs give forth water varying in temperature from 90 to 150° Fahr. Some of them contain minerals that make them valuable on that account, some are indifferent as to minerals and depend for their value entirely upon the heat, and are used chiefly or entirely in the form of the bath. The Carlsbad are mineralized and the Hot Springs of Arkansas are indifferent waters of this class.

The Calcic or Alkaline Calcic waters, so-called, are but slightly mineralized. The predominating element is some calcic salt, but they all contain more or less of the alkaline carbonates or bicarbonates and most of them some carbonic acid gas. They are nearly or quite tasteless, and their effect on the sys

tem is in general that of an unirritating diuretic. The Contrexville, Leuk, Wildungen and Bagnères-de-Bigorre waters are old and the Waukesha waters new examples of this class.

Diseases likely to be benefited by mineral waters. Only a few of the many diseases that afflict mankind are susceptible of relief by the use of mineral waters. These are now fairly well understood, and although few, they make a list that is somewhat formidable. The following are among the more notable of them:

1. *Debility* and the digestive and assimilative disturbances attendant upon it. Victims of these conditions are numerous among men and women who work with brain or hands and who have cares. They are the drudges of all sorts who are ever improved by a vacation and whose indigestion and malassimilation always disappear upon an increase of vigor. Some of them are the *anæmic*, bloodless subjects of blood losses and wasting discharges of pus, and who lack recuperative ability; some are chlorotic.

2. The large class of diseases and disorders of the *digestive apparatus*, including: catarrh of the stomach, duodenum and bile ducts; formation of gall stones in the liver, bile ducts and gall bladder; catarrh of the intestines, with alternations of diarrhœa and constipation; constipation and hemorrhoids. From these conditions result perhaps every symptom ever ranged under the designation of dyspepsia.

3. Various *rheumatoid affections.* These are: gout (rare in this country); chronic rheumatism and rheumatoid arthritis or rheumatic gout; muscular rheumatism, and many cases of obstinate neuralgia, including some of sciatica.

4. *Syphilis*, not primary.

5. Certain diseases of the *skin*, such as eczema, psoriasis and pityriasis.

6. *Acute* febrile diseases in which there is a tendency to nephritis, albuminuria, and irritation of the urinary organs from deposits of solid matter from the urine, and from the concentration of this secretion incident to the fever state.

7. *Diabetes mellitus*—perhaps and probably.

8. *Disorders of the urinary apparatus.* Among these are inflammations of the kidneys (certain forms of Bright's disease), inflammation of the pelves of the kidneys, with or without gravel as a cause or a result, inflammation of the ureters and bladder—including catarrh of the bladder in all its multifarious shapes and degrees of severity.

The use of mineral waters in disease. Every chronic invalid who desires to get the best effect from the powers of the springs, should, if possible, visit them and drink the waters there. The change of life involved in such a visit will prove of great benefit, in addition to the good effect of the water.

The patient with *debility* from overwork or overworry, with some *indigestion and derangement of the bowels*, should have a radical change of diet. He should discard all condiments, new bread and pastry, and eat the most digestible and nourishing food, such as milk, stale bread with butter, eggs, oysters, tender meats, plain vegetables and fruits. He should eat slowly and without fluids to "wash down" his food, and the quantity of the food should be restricted to what can be digested without discomfort.

In choosing his mineral drink he should take a mild alkaline water, either a plain alkaline, or one in which the saline or purgative elements slightly predominate. It must never be strongly alkaline nor strongly purgative, either from the chloride of sodium or the purgative salts.

If the conditions of the case and the character of the water will allow, he should take the water in rather large draughts, for the purpose of securing to some extent a diuretic effect, and to wash out the stomach. If in any case the stronger waters are used, particularly the laxative varieties, of course only a limited quantity can be drank. Yet a slight laxative effect is not objectionable, and is usually desirable.

When the bland waters are taken constipation sometimes occurs. This must be prevented in some way, and a very good way is to add to the morning draught the old-fashioned pinch of salt, or what is much better a pinch of some saline mixture which the physician may prescribe. Such a mixture would need to be varied according to the case, but it should always contain a major proportion of the sulphate of sodium. The patient will soon learn the dose of the mixture that is necessary for his case. No violent or prolonged purgative effect should be permitted.

Patients with *anæmia* and *chlorosis* should be advised to drink an alkaline iron water of only moderate strength, or a mild laxative alkaline water. Waters altogether too strong of iron are often taken by such patients. Chalybeate waters are liable and likely to aggravate any existing congestion of the liver or duodenum, and for this reason they are contraindicated in many cases of malarial anæmia, in which condition such congestions are common. All anæmic patients should have every aid of rest, recreation and change, with a most nourishing, digestible and full diet. Constipation and purgative effects are equally damaging to such cases.

Catarrh of the stomach of the usual form nearly always improves on the use of the alkaline, saline-alkaline or alkaline-purgative waters, with some rest of the organ. The amount of water proper to be taken is, to a certain extent, in inverse ratio to the concentration of the minerals. The bowels must be made to act rather freely, by the water unaided or by some mild laxative.

Catarrh of the duodenum and bile ducts improves on the use of the same class of waters, but a considerable admixture of sulphate of sodium (Glauber's salts) with the alkalies, is of advantage, particularly to the catarrh and congestion of the bile ducts and liver, the jaundice sometimes resulting and the tendency to the formation of gall stones. It is doubtless this salt that gives much of its value to the world-famous Carlsbad waters. If, in chronic cases of the last named disorders, the weaker alkaline waters are selected and anything like constipation should occur, benefit will be found in the addition of an artificial mixture of saline substances such as already suggested, with this difference, that the bicarbonate of sodium as well as the sulphate should enter quite largely into its com-

position. Chalybeate waters usually disagree with these patients, and should not be advised. Many cases of this class of ailments are caused by too much alcohol or some other stimulant, by over-eating or by some other abuse. Such cases are frequently called engorgement of the liver, and they seek the spas abroad and the springs at home in great numbers. A rigid adherence to a simple, unstimulating, and, unless there is debility, a rather low diet, must be insisted on with all such patients. This, with a prolonged use of the alkaline waters, will generally be followed by marked relief. Patients often feel so much improved after a short course of this treatment that they believe themselves to be well, and, returning to their old ways, are soon as bad off as ever. Nothing but patience in the regimen and prolonged use of the waters, or a frequent return to them, will give anything like permanency to the recovery. Many of these patients are plethoric, and can use waters much stronger in alkalies and purgative salts than the anæmic; for the latter the milder waters are preferable. The mistake is often made with the anæmic patient of trying, by violent purgation, to cure a congestion of some of the organs referred to, while the anæmia is growing worse. This is a serious mistake indeed, and it reminds one of a great French surgeon and his female patient with a bad skin disease. He gave her such powerful alteratives that, as the eruption grew less the patient did also, and finally died just as the eruption was disappearing, whereupon the surgeon triumphantly declared that "she died cured."

Jaundice, in the majority of cases, is due to catarrh or inflammation of the duodenum and bile ducts; hence, the relief of these possible conditions is the first thing to be thought of in connection with the treatment of icteroid troubles.

Catarrh of the intestines without constipation will experience more benefit from the mild alkaline or the alkaline-calcic waters than any other, unless there be also anæmia, in which case the element of iron as found in some of the mild chalybeate waters will be a good addition, provided it does not happen to cause constipation. A strong chalybeate water is likely to do this.

Obstinate constipation is benefited by the purgative waters taken regularly, a draught, large or small as required, daily before breakfast. In choosing water for this purpose, it is well to remember that the sulphate of sodium has a better effect on the intestinal mucous membrane than the salt of magnesium.

Hemorrhoids are relieved to a certain extent by anything that relieves or prevents constipation.

The chronic rheumatoid affections referred to are all susceptible of more or less relief by the free and prolonged use of the rather strong alkaline waters, particularly those that are laxative. In some cases, however, the milder waters seem to work better, but there is always benefit in a free action of the secretory organs, especially the skin, intestinal canal, liver and kidneys. Full function of the skin and kidneys may be maintained longer and more continuously by the milder alkaline waters than by any other. To do this rather large quantities must be drank and they may be taken continuously for an indefinite time. The body must be kept scrupulously warm at all times with woolen clothing, and wool or silk should be worn next the skin. Greater benefit than comes of drinking the water is derived from a long course of hot baths at the springs. It is not important that the water be mineralized; the indifferent thermal waters work quite as well as any. The product of the Hot Springs in Arkansas is an indifferent water, yet the resort is justly famous for this class of disorders. It is essential that the baths be taken regularly and for a number of weeks continuously. They must be of a uniform and high temperature and the air of the bath-rooms must be hot. It is next to an impossibility to attain all these conditions at the home of the patient, and they are rarely secured by a patient except at the springs. The bath treatment should always be directed as to all its details by a physician.

Syphilis, not primary, is benefited by hot air, hot climate, and hot baths, and the Arkansas resort has a great reputation in its treatment. Improvement occurs in most of the cases that resort to the baths faithfully, but most of the patients take large doses of the alterative medicines of mercury and iodine, while under the bath treatment, so that the results cannot all be attributed to the effects of the latter.

In using mineral waters for diseases of the *skin*, discrimination and care are necessary and it should be done under the advice of a physician. Eczema in certain forms, lichen, psoriasis and impetigo have been relieved by the waters. The sulphur and saline sulphur waters have seemed to do best, but if any catarrh of the stomach exists, which is not unfrequently the case, an alkaline water should be selected. Many cases of chronic skin disease have recovered at the springs, solely through the correction of some disorder of the internal excretory, or the assimilative organs, which had acted as a cause.

Mineral waters are generally supposed to be unadapted to *acute diseases*, or to do them positive harm. This view is irrational. Certain acute disorders receive the greatest benefit from laxatives, and a form of laxative medicine very grateful to many patients is such mineral waters as the Hunyadi, the Püllna, or the Friedrichshalle. To many fever patients the mild carbonated waters are extremely refreshing, and for the nausea and gastric irritability with which the sick are often annoyed, they frequently prove more soothing than anything else.

Such acute febrile diseases as are often attended by congestion of the kidneys and albuminuria may receive considerable benefit from the unirritating diuretic waters. They are grateful to the patient, cause probably an increased discharge of effete matter by the kidneys, dilute the urinary solids and render the passages more safe. The bland alkaline or calcic waters, with a touch of carbonic acid gas, will be found to agree best with such cases.

The water slightly carbonated is more grateful than the plain water, and the carbonic acid gas in small amount is oftentimes soothing to the stomach. Large doses of the gas are irritating. The charged waters as they come from the bottle are often too highly carbonated for a sensitive taste; they are too pun-

gent. When this is the case the water may be allowed to stand for a time exposed to the air to allow part of the gas to escape before using, or it may be briskly stirred with a spoon for half a minute. The patient will easily learn the proportion of gas that pleases him.

In *diabetes mellitus* the alkaline calcic waters may be taken freely, or the milder saline waters less freely, as a palliative. But the patient must subsist on the regulation anti-diabetic diet. Little hope of recovery need be entertained if ordinary diet is used.

Most of the *disorders of the urinary apparatus* are at beginning, and chiefly, irritation or inflammation of the mucous surfaces that are concerned in secreting the urine, in conveying it, in storing it for a time and finally in expelling it from the body. One of the first requirements in the proper management of such affections, is to put the disordered parts at rest and guard them from all irritating influences. Here rest of the parts is only to a very limited degree possible. Efforts must be mainly directed to relieving them from irritation. One of the first steps is to keep the skin uniformly warm, so that a large amount of blood may be retained in the surface of the body, and congestion of the deep organs be prevented. The general health should be maintained in a good condition, that the urine may be as nearly normal as possible. This principle is cardinal, since many of the diseases of the urinary organs are induced directly by the urinary aberrations of general ill health. Another thing to do, and that should never be omitted, is to decrease the irritation of the surfaces due to the urine, by diluting the solid matter thereof. Here is a means of some relief always within reach, and the wonder is, and the regret, that it is not always resorted to. Irritating substances in the urine, and substances irritating solely because they are in a concentrated state, may be made at once innocuous by the free dilution with water that a diuretic action produces. The employment of mineral water for ailments of the urinary apparatus, should be in this direction. Repeated and large draughts of the bland waters may be taken daily for a long time and with uniformly good results, particularly if the general health can be maintained, and the patient be under conditions of good hygiene. The waters adapted to such cases are the unirritating diuretic waters, the mild alkaline or alkaline calcic fulfilling this indication best.

In Bright's disease bodily exercise must be reduced to a low point for the purpose of lessening the labor of the kidneys. A restricted and very digestible diet should be taken, milk being one of the best foods. If the diet is restricted to this article and a large quantity be taken a diuretic action is induced not unlike that caused by the blander waters—the kidneys are, as has been said, washed out and their tubules are flushed. This is the purpose of the waters — to wash out, to flush the kidneys. Here hot baths are useful, but they must be used so as to increase the secretory action of the skin and keep it up to a high point of efficiency. The surface of the body must not be chilled; this is not enough—the possibility of chilling it must be prevented. Hence, hot air and hot water, warm air and warm clothes must be the rule.

Owing to the great danger of disturbing injuriously the circulation in the kidneys in Bright's disease by a chill of the surface, it is unsafe for the patient to attempt to direct his baths himself. They should be taken under the direction, or better, under the observation of the physician.

How to drink mineral water. Do not drink it very cold unless it is a strong water and the dose is small. The milder waters must be taken in large doses (4 to 12 or more glasses daily) and should be drank cool, tepid or hot, never cold, as this might hurt the stomach and retard absorption. Many of the stronger waters, especially those that have an unpleasant taste, may be best drank hot, and, indeed, in the catarrhs of the upper abdominal portions of the digestive tube and in nearly all those conditions that go by the name of dyspepsia there is often great advantage in drinking the waters hot.

The water should in every case be taken slowly; several minutes should be given to each glass. With this precaution, several glasses may often be taken in succession without harm. The best time to drink is before a meal, especially before breakfast and supper. A meal must not immediately follow large draughts of water; half an hour at least should intervene. If any bad effect, like a sense of discomfort or fever should come on while using a water in large doses, reduce the daily quantum at once or stop it for a while altogether.

No discomfort at the stomach should be allowed to follow the taking of even moderate potions of the waters. If such should occur an effort must be made to learn the reason of it. Perhaps the water is taken too hot or too cold, too rapidly or in too large draughts, at the wrong time of day or in wrong relation to a meal. If the cause cannot be discovered and the difficulty corrected, the water is not adapted to the case and should be abandoned.

In this brief synopsis only a few of the more important facts and considerations regarding this interesting subject could be given; much has been omitted that might be said on the subject of baths, partly because much must be omitted and partly because the taking of baths, while often and best done at the springs, is nevertheless not so much a use of mineral water as it is a therapeutic use of hot water and air. Certainly the omission will not be taken as indicating any lack of appreciation of this valuable therapeutic measure.

CHOLERA---ITS DISASTROUS PAST AND ITS MORE HOPEFUL FUTURE.

BY H. RAYMOND ROGERS, M.D., DUNKIRK, N. Y.

The absolute failure in the past to read aright the clearly defined symptoms of this disease has left it, as found to-day, one of the most obscure and incomprehensible of all diseases. The wrong reading of symptoms is indicated by the fact that the rate of

mortality is virtually the same, whether nature alone is trusted for the cure, or whether the treatment is according to the best lights in medical science; viz.: 50 per cent. of those who are attacked.

Such being the fact, it is discreditable, not to say criminal, longer to entertain the theories or to employ the modes of treatment belonging to such a past. Our profession will be held to a rigid accountability by a world of growing intelligence. This disease will be studied by those outside of the profession who have faith in a better state of things as being possible.

The hope for better results clearly depends upon our breaking loose from old traditions, old theories, old systems, so as to be able to read the disease in the pure, simple light of its actual symptoms, and its well-known cadaveric autopsies. Then will the essential character of the disease be discovered, and at the same time its rational and successful treatment.

The fact that persons are attacked and die in the brief space of 20 or 30 minutes, proves that the fatal blow is expended upon the brain and nervous system. The malaise preceding the active stage of the disease, and the accompanying sense of prostration, add confirmation to this hypothesis. It is plain that the general nervous system is implicated, thus demonstrating that the disease is essentially *a neurosis*.

The rice-water discharges derived from the watery element of the blood constitute a true hæmorrhage. The brain and heart are thereby suddenly deprived of their natural stimulus. The rapid escape of a single element of the blood becomes disastrous, in the same manner as when the full blood is lost in the more ordinary forms of hæmorrhage. Such is the essence of the disease. But, owing to the failure to discriminate between the functions of the red corpuscles and the white discs, the two chief constituents of the blood, this philosophy has not been applied in its explanation. The vital force depends upon the red corpuscles, for through them chiefly is the oxygenation of the blood and consequent revitalization of the system. A small loss of this element is often speedily fatal. On the other hand, the serum or white element constituting the bulk of the blood apparently possesses less vital functions, and its abstraction becomes neither so quickly nor so seriously apparent. Enormous quantities are sometimes separated from the circulatory current without fatal consequence. The disregard of the true hæmorrhagic character of these discharges may account for the strange misconceptions that have heretofore prevailed.

The theory herein asserted, that cholera is essentially a neurosis—that its leading phenomenon is a true hæmorrhage, is incontrovertible, if any reference be made to actual conditions observed during or following an attack of the disease. Autopsy shows nothing which may not result from loss of the watery element of the blood. The so-called cholera microbe of Koch is now found *where cholera does not exist*, and, too, as Dr. Koch informs us, *in other epidemic diseases*. All diagnostic or therapeutic significance is removed from this microscopic object, as well as all scientific importance. The fact that these microbes have escaped the observation of such distinguished microscopists as Hayem, Thudicum, Macnamara, and Bruberger, who number their autopsies by hundreds each, and a host of others of rare skill, whose investigations in this field were continued through long periods with infinitely better opportunities, shows them to be simply occasional concomitants of the disease, rather than its cause.

Assuming the correctness of the foregoing theories, the principle of treatment becomes unerringly determined, viz.: such treatment as is indicated in other forms of active hæmorrhage, with this important distinction—*i. e.*, the cholera hæmorrhage demands a vigorous watchfulness and attention, such as is rarely called for in its more common sanguineous forms.

It is essential to the healthy physiological action of the brain, that it be supplied with currents of blood normal in constitution and in full measure. The sudden disturbance in its equilibrium, in either of these respects, is capable of producing sudden and sometimes alarming or fatal effects. The pinched visage, sunken eye-balls, lusterless eyes, burning thirst, hoarse voice, washerwoman's hands, suppressed urine, cold extremities, and the voiceless yet speaking cadaver, all tell the story of emptied blood-vessels and a depleted brain. These conditions necessitate a speedy re-supply for the brain and heart. This can be accomplished only through the instrumentality of gravitation—*by position*. Let it therefore not be forgotten that the treatment of cholera resolves itself, in a measure, into a simple problem in mechanics—in hydraulics—upon the principle that water (or blood) tends to run down hill. This philosophy is emphasized in the fact that the loss of blood which, in the upright position, would quickly produce syncope or death, would scarcely be heeded in the horizontal position. *Position* thus becomes the fundamental consideration in the treatment of this disease—horizontal in mild cases, or inclined, with the head lowest, in grave attacks. We have reason to suppose that position alone would save a large proportion of the cases which otherwise would prove fatal. In severe attacks the inclination of the body should be strictly maintained until reaction becomes established. Murray tells us that "once sitting up in bed sometimes causes death in this disease." It should be well understood that no diarrhœa is harmless during a cholera epidemic. At such a time painless diarrhœa or vomiting are signals of danger. No attack, however mild, is free from the danger of suddenly and without warning passing into its gravest form. The obscurity incident to concealed hæmorrhage in this disease necessitates watchfulness, as death has at times been sudden, and the bowels found plugged with hardened fecal concretions and filled with rice-water secretions. The contents of the bowels being liquid, act upon the sphincter ani by gravitation, and thus mechanically provoke catharsis; this necessitates the horizontal position.

Medication through the medium of the stomach cannot be relied upon in the treatment of cholera except in its earlier stages. At a period more advanced the physiological action of the mucous membrane becomes suspended, or reversed, and absorption no longer takes place. Hypodermic medication then becomes our surest reliance. Morphia, the king of

nerve-remedies, becomes our most efficient agency. While morphia in small quantities is of the highest value, yet, it cannot be too strongly impressed upon the mind that this drug has peculiar dangers when employed in the more advanced stages of the disease. Chloroform is of great value applied either by inhalation or internally. Opiates in any form are useful in guarded doses. Ice, *ad libitum*, or coldest water in small quantity, frequently repeated, also friction and external warmth, are *indispensable*.

As this disease is a neurosis and therefore mainly affects the general nervous system, any influence which is depressing to that system not only leaves it open to invasion, but actually invites attack, and often determines a fatal issue. Fear is the most potent nerve-depressor, and thus becomes its principal exciting cause and most fatal agency. In no other way is so wide-spread terror and depression generated and propagated as through the published press reports. The eagerness with which the public mind fastens upon anything which gives information as to the cholera, is phenomenal. The press cannot, therefore, too soon come to the full realization of the vast power which it exercises in determining the results of an epidemic, and the consequent necessity of caution in referring to the subject during its actual invasion.

National, State and local Boards of Health would promote the great cause which they represent by officially suggesting the value and importance of position as an element in the management of this disease, and by urging its early adoption in all cases of attack.

The foregoing theory of cholera and suggestions of treatment are simple—not the children of scientific imagination, nor are they due to the skillful construction of the theorist. They embody the results of a careful study of the disease both at home and abroad during the past 33 years, and an experience in its treatment in every epidemic since 1851, also a personal experience of its effects.

As a demonstration of the good effects in part due to the operation of this system, I may add that in all the cases in which it has been followed under my observation, 13 in number, the result has been favorable. The cases, although sporadic, were typical, and several of them were of the gravest character.

A concise description of a single case may be interesting and instructive.

Mr. A. was attacked by cholera in its gravest form. When first seen the pulse was only perceptible, and numbered 140. The prostration was extreme. His condition was such that morphia was inadmissible. The only hope in the case appeared to be in position. The body was inclined with the head lower than the feet—ice, warmth and frictions were employed and chloroform administered by inhalation for the relief of cramps. At the end of one hour the pulse had slightly increased in firmness, thus warranting the application of ⅙ of a grain of morphia hypodermically. This was repeated at long intervals. The result, recovery. This case was the first in which I recognized the vital necessity of a position inclined, with the head the lowest, as an element in the treatment of this disease. It is reasonable to suppose that life in this instance depended upon the adoption of this expedient.

We offer the preceding philosophy of this disease as one capable of explaining its phenomena in a clear and rational manner, and as meeting the indications for treatment by a method at once simple, rational, and consistent.

Its crucial test may be found only in the results of treatment when applied under all conditions and circumstances of the disease. The problem, therefore, remains for future solution.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

THE PASTE TREATMENT OF INFLAMMATORY SKIN DISEASES, ESPECIALLY ECZEMA.—Dr. P. G. Unna, (Monatshefte fur Praktische Dermatologie; Edinburgh *Med. Jour.*) finding the greasiness and expense of ointments to be strong objections to their use—found that he could use a kaoline paste to advantage, and soon found that lead, starch, dextrin and gum pastes, might replace the kaoline paste. A good paste should be quickly and easily spread as a thin layer on the skin, and should spontaneously form in a short time a dry, firmly adherent coating.

Kaoline pastes.—Pure kaoline, with vaseline or glycerine in equal parts, with oils such as olive, almond, linseed in the proportion of 2 to 1, will produce a good paste. With more linseed oil a liniment is produced. This spread on extensive surfaces leaves a quickly drying residuum. When other ingredients, such as acetate of lead or oxide of zinc, are used, the kaoline and oil or glycerine are first to be mixed, and then the lead or zinc added, as the kaoline and the mineral are otherwise apt to form an insoluble cement. A suitable paste for eczema is this:

℞ Kaolini puri.
Ol. lini (v. glycerini).....āā 30-0
Zinci oxidi.....
Liq. plumbi subacet.....āā 20-0

Instead of white kaoline, the yellow or red is occasionally preferable for pastes for the face. The kaoline pastes are not merely suitable for the treatment of all kinds of eczemas, erythemata, and intertrigines, but are also suited as vehicles for strongly oxidizing, reducing or caustic remedies.

Lead pastes.—Boil a quantity of litharge with double the quantity of vinegar till the vinegar has evaporated, and the litharge has been transformed into a moderately damp paste. Should the paste become dry in time, it can be heated up with a fresh quantity of vinegar. This paste possesses considerable exsiccative power.

℞ Lithargyri subt. pulv.....50-0
Aceti 80-0

Boil to the consistency of paste and add

Ol. lini (v. glycerini, v. ol. olivæ)..10-0

Starch pastes.—Here the property of drying must be imparted by the addition of some tempering material, as oxide of zinc, sulphur, etc. The following forms a good starch paste for eczema:

℞ Zinci oxidi.....50-0
Acid salicylici..... 2-0
Amyli oryzæ.....15-0
Glycerini.....15-0
Aq. distill.....75-0

Mixed directly and all heated at once to 140-0.

Starch paste for acne:

℞ Sulphuris precip.....40-0
Calcis carbonat..... 2-0
Zinci oxidi.....20-0
Amyli oryzæ.....15-0
Glycerini, ...20-0
Aq. distill.....75-1

M. boil to.....120-0

Dextrin pastes.—It is recommended to use the official pulverized dextrin.

For eczema:

℞ Zinci oxidi..... 40-0
Dextrini.....
Aq. distill.....āā 20-0
Glycerini..... 40-0
Sulphuris sublim. (v. natri sulpho. ichthyolici)..... 2-0

M. boil to a paste.

For freckles:

℞ Zinci oxidi..... 10-0
Bismuth oxychloridi 2-0
Hyd. perchloridi..... 0-2—0·5
Dextrini .....
Aq. distill.....āā 10-0
Glycerini..... 15-0

M. boil to paste.

If hard, a few drops of hot water renders the paste easily spread.

Gum pastes.—For eczema when chronic in children:

℞ Zinci oxidi..... 40-0
Hyd. oxid rub..... 2-0
Mucilag. acaciæ.....
Glycerini.....āā 20-0
℞ Cretæ preparat.
Sulphuris sublim.....āā 2-0
Picis liquid..... 8-0
Amyli 20-0
Mucilag. acaciæ.....
Glycerini .....āā 15-0

For scabies:

℞ Zinci oxidi..... 40-0
Bals. Peru..... 20-0
Mucilag. acaciæ.....
Glycerini.....āā 30-0

In chapped nipples:

℞ Sacchari albi.....
Zinci oxidi.....
Mucilaginis acaciæ.....
Glycerini.....āā 5-0

The gum pastes suit well as excipients for chrysarobin and pyrogallic acid. They cannot be employed as vehicles for acids, since these destroy their adhesiveness. Oily substances can be incorporated with them.

Endeavors to find such pastes, which can be kept ready prepared in bulk, have not so far been crowned with success. The addition of glycerine and oil does not hinder them from drying up in time, and the better the paste, that is, the more rapidly it dries when applied to the skin, the more quickly it perishes when kept. But by these pastes a commonly felt defect in our medication is filled up and a suitable method of employing various active drugs is presented, as for example: *Lead* can be best employed as acetate in the simple lead paste or in combination with the dextrin paste; with both all other preparations of lead mix well, as the carbonate, the oleate, and the iodide. *Oxide* of *zinc* appears as a subordinate ingredient in the kaolin and lead pastes, as a principal element in the starch, dextrin, and gum pastes. *Sulphur* suits the starch, dextrin, and gum pastes, is less compatible with the kaolin, and not at all with the lead paste. The preparations of *ichthyol* suit for all except the gum paste. *Tar* suits better for the starch, dextrin, and gum than for the kaolin and lead pastes. *Naphthol, carbolic acid, chloral hydrate,* and *camphor* can be incorporated with all the pastes. *Salicylic acid* mixes well with all the pastes, unless with the gum paste, in large proportions. *Iodine* and *iodoform* suit for the lead, kaolin, and gum pastes, not for the starch and dextrin. *Corrosive sublimate, calomel, red and white precipitate,* can be incorporated with all the pastes. *Chrysarobin* and *pyrogallic acid* suit best the kaolin and gum pastes. Animal, vegetable, and mineral fats and soaps can be mixed in small quantities with the pastes without injuring their properties, but not in large amounts.

Pine Baths.—*The Midland Medical Miscellany* tells us of the practice at some of the watering-places of Germany of using pine baths as highly beneficial in kidney diseases and for delicate children. The bath is prepared by simply pouring into the water about half a tumblerful of an extract made from the fresh needles of the pine. This extract is dark in color and closely resembles molasses in consistency, and when poured into the bath gives the water a muddy appearance with a slight foam on the surface. The repugnance one feels to enter into such a muddy looking fluid, is dispelled as soon as the delightful aroma which arises from the bath is inhaled. Although there may be some doubt whether pine baths act upon the system in any other manner than as a tonic, still, as an adjunct to the daily bath, infusion of the pine extract induces a most agreeable sensation. It gives the skin a deliciously soft and silky feeling, and the effect upon the nerves is quieting. The extract when properly bottled and securely corked, will not deteriorate for a long time, and the cost for gathering the pine needles and extracting their tarry substance is not very great.

It has long been recognized that the atmosphere of pine forests has an invigorating and beneficial effect upon people with weak constitutions and suffering from pulmonary disorders. A very simple prescrip-

tion of the physician is that the patient should spend several hours a day walking or riding through the pine wood.

To this we would add that the amusement of ladies and children at such places, of stuffing pillow cases and sofa cushions with these pine needles, and particularly with the strippings of the spruce, should be encouraged as taking them out of doors into the very midst of the pines, with healthy exercise, and saturating them with the aromatic principle of the trees. The pillows and cushions are reasonably soft and retain the aroma for a long time, to the pleasure and possible benefit of both the invalid and the healthy.

On the Action of Carbolic Acid, Atropia, and Convallaria on the Heart of the Terrapin and Frog.—Dr. H. G. Beyer, U. S. N., has been conducting a series of experiments on this subject, the results of which are given in the Proceedings of the Naval Medical Society. His experiments on carbolic acid show: 1st, that carbolic acid, in small as well as large doses, acts as a depressant on the heart from first to last, reducing its rate, its work done, and the blood pressure; 2nd, that the heart, as long as it is supplied with good oxygenated blood, will, up to a certain degree, show what almost amounts to an immunity from the poisonous effects of the drug; 3rd, that any effects produced by carbolic acid other than depressant are due to other causes, probably to primary stimulation of the respiratory centre in the medulla oblongata.

His experiments on atropia show: 1st, that after the heart has been carbolized, atropia increases its rate, and also its work; 2nd, it shows a more rapid recovery takes place after carbolization under atropinized blood than under normal blood. He believes with H. C. Wood that atropia must have a very powerful stimulant action upon the intra-cardiac accelerator centres.

His experiments with convallaria maijalis were mainly with the glucoside convallamarine and showed: 1. Increase of heart-rate. 2. Slight increase in work done. 3. A raising of intracardiac and aortic pressure. 4. Both auricles and ventricles arrested in systole when medium doses were used. 5. Large doses arrested the heart at once. 6. It produced its results most probably by its direct action on the muscular substance of the heart. 7. Has a decided cumulative action, acting much slower than digitalis, and is much more persistent after the heart is once under its influence. He deduces from these results that convallaria is counter-indicated in advanced cases of cardiac disease, in which the muscular structure of the heart has undergone degeneration. Convallamarine should be used in preference to any other preparation. Not more than one full medicinal dose should be given daily on account of the cumulative action of the drug.

Injections of Citrate of Iron in Chloroanæmia.—*El Siglo Medico* recently published the description of an interesting case of chloroanæmia cured by hypodermic injections of citrate of iron. The patient had presented symptoms of chloroanæmia since 1879, and had become excessively reduced in weight. It was determined to give dilute hydrochloric acid in gtt. viij doses, and at the same time hypodermatic injections of citrate of iron in the proportion of grs. xxx to f℥ v of water; ♏xv to be injected in different parts of the body every day. After forty injections the morbid phenomena disappeared, and the patient had gained over twenty pounds.—*Midland Med. Miscellany.*

MEDICINE.

Relation Between Affections of the Eye and Lesions of the Teeth.—The *Recueil d' Opthalmologie* (*Jour. de Med.*) gives a résumé of a work by Prof. Power relative to this question, which has been but little studied. These relations are various in their character, and act either upon the muscular fibre, upon the cornea, or upon the optic nerve, the retina and the intra-ocular tissues.

One of the most common affections produced by dental diseases is the weakening, or even the loss, of the power of accommodation of the eye. This influence seems to be more marked in young subjects than in those that are older.

These reflex phenomena may also act especially upon the fibres of the iris. Desmarres cites the case of a patient who was cured of a mydriasis by the extraction of a carious molar tooth. Exophthalmos with glaucomatous phenomena has also been noted in connection with carious teeth, and has disappeared after their extraction. Von Graefe has given a case of blepharospasm which was produced in the same way.

The influence of carious teeth is also very often shown upon the conjunctiva and the cornea. Phlyctenular ophthalmia is very often associated with these alterations. Almost exclusively confined to children, it is relieved readily, but careful attention must be paid to the diet of the little patient, and sugars and acid fruits must be interdicted, because these substances, by depositing upon the carious teeth products susceptible of fermentation, produce inflammatory affections which propagate themselves along the nerve and become the cause of conjunctival inflammation. By this statement it is not the intention to deny that there is a phlyctenular ophthalmia of a different etiology, but this cause is a very common one.

Power cites an interesting case of corneal lesion: An abscess of the cornea occurred in a young girl accompanied by anæsthesia extending over the whole of the region supplied by the ophthalmic branch. No treatment was beneficial until the patient decided to have several carious teeth extracted which had given her much pain. From that time on there was a marked and progressive improvement.

The same action is demonstrated in the fundus of the eye by an observation of Lawrence in a case of complete cecity of one eye in a patient suffering from a carious molar. This (the molar) was extracted, and a foreign body found at its extremity, a little piece of wood, which had traversed the centre of the tooth through its carious portion and had re-

mained implanted there. The pain ceased at once, and the same evening the eye commenced to be again sensible to light. On the ninth day the patient was cured, after a cecity of 13 months.

If the irritation of the fifth pair produced in consequence of dental decay is persistent, it is perfectly possible that it should give rise to serious and permanent visual affections. The glaucoma, which is due to alteration in the nutrition of the eye, may frequently have its origin in a lesion of the dental nerves. In conclusion, Power lays down as a law that in all cases of commencing glaucoma, in myosis or mydriasis without apparent cause, in the sudden paralysis of one of the muscles of the eye, or in amaurosis not of cerebral origin, in phlyctenular conjunctiva, or in persistent ulcerations of the cornea, as well as in paralyses of accommodation, particularly in children, a careful and minute examination of the teeth must be made at the beginning, and any lesions found there must be properly attended to, for very often by so doing the affections of the eye will be relieved.

SURGERY.

Massage in Stricture of the Urethra.—*The Midland Medical Miscellany* gives us an extract from the *Centralblatt für Chirurgie* of Dr. Géza v. Antal's experience with this treatment in a number of cases.

The difficulty of passing a sound in stricture of the urethra following gonorrhœa depends, in the majority of cases, not so much upon the simple narrowing of the urethra itself as upon proliferation of the connective tissue in the surrounding parts. This hyperplasia of the connective tissue occurs in irregular patches about the urethra in such a way as to render the canal tortuous, thus increasing the difficulty of passing an instrument to the bladder. Dr. v. Antal succeeded in inducing absorption of this hyperplasia by massage. The duration of each sitting was from eight to ten minutes, and the massage was repeated daily.

Massage of the pendulous portion of the urethra presents no difficulties, but that of the membranous and prostatic portion is possible only through the rectum. Internal massage by means of the repeated introduction and withdrawal of a sound, as recommended by Bardinet, does not commend itself to the author. It is only possible in those cases in which the stricture is already permeable, while v. Antal's method is of especial value precisely in those cases in which the urethra will not admit of the passage of a bougie. Further than this, internal massage acts only upon the thin layer of tissue immediately surrounding the urethra, while the external method causes the entire hyperplasia to disappear. The author thinks that in many cases massage will be used in preference to urethrotomy.

Echinococcus of the Spleen.—Prof. Mosler (*Deutsche Med. Wochenschrift*) has studied 56 cases of this disease with the following conclusions:

1. Sex seems to give no predisposition toward echinococcus of the spleen.

2. The affection is most usual between the ages of 20 and 30 years.

3. As regards symptomatology, the signs of the tumor may be so slight as to give no symptom during life. In other cases the first symptom is an intense pain after some exertion, or after labor, showing inflammation of the echinococcus cyst.

4. The diagnosis rests mainly on the physical signs, and is difficult. These tumors differ from other tumors of the spleen in their fluctuation.

5. The prognosis of solitary echinococcus of the spleen is certainly more favorable.

6. Internal treatment amounts to nothing. The sac must be opened by means of scissors, and Volkmann's method for suppurating echinococcus of the spleen followed.—*Midland Med. Miscellany.*

OBSTETRICS AND GYNÆCOLOGY.

Chronic Heart Disease and Pregnancy.—This is the subject of an inaugural dissertation by G. Wesner, of St. Gall, who gives the following résumé, after a careful review of the literature of the subject:

1. There is no specific physiological hypertrophy of pregnancy. The heart of the pregnant woman only obeys the general law that the mass of the cardiac muscle increases with that of the body.

2. Other grounds for believing in a physiological hypertrophy are faulty, and cannot be brought into pathological relation.

3. The conditional hypertrophy of the heart, of pregnancy, caused by increased body-weight, is so slight that it can only be considered as a danger in very severe heart trouble.

4. The causes of the unfavorable influence of pregnancy on heart trouble, lie not so much in the increased cardiac activity, on account of the pregnancy, or the pressure suddenly removed by labor, and the high position of the diaphragm, as in the psychical and physical fatigue of labor, which reacts on the heart.

5. But, as statistics show, these are endured in by far the greater number of cases, without especial damage. It seldom occurs that severe heart trouble is specifically due to pregnancy, but it more usually happens that we have to do with very severe heart disease as a secondary complication.

6. As malignant endocarditis occurs especially in the course of old heart diseases, so it also seems to occur after labor, as septic poisoning.

7. The prognosis is considerably better for both mother and child, if it exists from the beginning.

8. The treatment is symptomatic, not the performance of premature delivery, but hastening labor if necessary.—(*Centralbl. für Gynäk.; Midland Med. Miscellany*).

THE

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, OCTOBER 18, 1884.

THE DIAGNOSIS OF GASTRIC CANCER.—The difficulty of diagnosticating cancer of the stomach was set forth in a paper by Dujardin-Beaumetz at a meeting of the Société Médicale de Hopitaux the 25th of last July. The importance of differentiating this affection from gastric ulcer, gastric dilatation and chronic gastritis, with reference to prognosis and treatment, becomes apparent when we consider the relative frequency with which the stomach is the seat of cancer.

DaCosta states: (Medical Diagnosis, fourth edition, page 442) Cancer is found more frequently in the stomach than in any other organ except the uterus. Of 9,118 cases of cancer which occurred in Paris from 1837 to 1840, 2,303 were in the stomach.

According to the report of Dujardin-Beaumetz's paper, for which we are indebted to the New York *Medical Record* of October 4, there is no sign nor symptom which renders carcinoma of the stomach easy of recognition. There is no symptom that is pathognomonic of carcinoma of the stomach. At the bedside we are "usually unable to determine the precise nature of any internal tumor," and though "histology has given us a very complete list of the various forms of cancer," we are not capable of clinically distinguishing them with corresponding nicety. Cancer generally presents itself after the age of 40, and is more frequent in males than in females. But so also is gastric dilatation. As to the duration of the disease, it is said not to exceed three years. This the author pronounces incorrect, as he has observed one case in which, in all probability, it did not run its course short of 12 years. He knew of other instances where it had existed for periods longer than three years. Pain cannot be relied on, since it is not invariably present. "Painful œdema" of the extremities, which Trousseau considered as characteristic of cancer, may attend dilatation of the stomach. The coffee-grounds appearance of the *ejecta* is not trustworthy, since it is sometimes observed in gastric ulcer. Other dyspeptic symptoms are equally delusive by reason of their occurrence in chronic gastritis and dilatation. Even the presence of a tumor may be deceptive. According to the author, dilatation of this organ may exist together with thickening of the walls. Moreover, Quesnel's assertion, that the conjunction of cachexia, with a disorder of the stomach, is always proof of the affection being cancerous, is denied by Dujardin-Beaumetz. He has determined the amount of urea daily eliminated by patients suffering from cancer of the stomach, and found Romelare's statements correct in the main, though not without exception. M. Romelare declares that in gastric cancer the amount of urea excreted ranges between 120 and 150 grains in the 24 hours, whereas in ulcer it never falls below 225 grains, but varies from that up to 500 grains. Dujardin-Beaumetz found 45 grains to be the daily average of urea in one patient, and hence concluded the disorder of the stomach in this case was cancerous. The necropsy, however, showed it to have been "an hydatid cyst." The author also denies the utility of distending the stomach with gas, as do the German clinicians. On the whole, the distinguished author leaves the matter of the differential diagnosis of gastric cancer very much in the dark.

In many instances this must certainly be the case with the most of us, but, in the hands of a Mikulicz, the gastroscope appears to do much toward illumining the obscurity. This instrument is so difficult of manipulation, that it is not likely ever to become a part of the physician's paraphernalia. In Billroth's clinic, however, it is relied on as a valuable means of diagnosis. The Americans have a reputation as skilful manipulators, and it is to be hoped they will not neglect to cultivate the ability to utilize the gastroscope.

Though this instrument be so difficult of employment, there is another which is not so, and may often yield valuable results. We mean the microscope. Though fragments of cancerous tissue are not always to be found in the *ejecta*, their presence or absence is to be determined by microscopic inspection alone. Their absence would not disprove the existence of the suspected lesion, but, on the other hand, their detection would settle the question beyond a doubt.

Again, in hospital practice distension of the stomach, either with gas or liquids, is certainly advisable, since, Dujardin-Beaumetz to the contrary notwithstanding, it is often of great practical service. Else, why its employment at Vienna, Berlin, Munich, and elsewhere?

CORRECTIONS AND ADDITIONS.—For several months past we have endeavored to have all leading papers put in type in time to have the first corrected galley proof sent to the authors for their own correction and return before the sheets were finally put through the press. In the meantime the same proof is carefully revised here in close comparison with the manuscript.

In two or three instances it has happened that the author's proof has not reached us until a few hours after the printing was completed. Such was the case with the valuable paper of Dr. T. R. Varick in the JOURNAL for the 4th inst. And in consequence our readers are requested to make the following corrections: On page 373, in 41st line from the top of the left hand column strike out the word "femoris;" and in the 45th line of the same column for "extensors of the thigh," substitute "extensors of the leg." On page 376, in 44th line from the top of the right hand column, insert the following: "In private practice I report three cases, all successful, viz.:" At the bottom of the same column what is said of the temperature, pulse, etc., should have constituted a part of the marginal "Note" in reference to the two operations since the paper was written.

The report of discussions in the Section of Obstetrics and Diseases of Women at the last annual meeting of the Association, was not only more full than from any other Section, but was also written out in plain type-writing, indicating that the Secretary had given a commendable degree of attention to the duties of his office. Nevertheless some mistakes were made, one of which consisted in giving the name of "Dr. Holman of Boston," several times in the discussion on the paper of Dr. R. S. Sutton, of Pittsburgh, published in the JOURNAL of the Association for September 20, 1884, when the name should have been Dr. John Homans, of Boston. Dr. Homans, in a letter bearing date the 6th inst., asking for a correction of his name, gives incidentally the interesting fact that he has "just had a run of 38 successful ovariotomies."

CHOLERA IN EUROPE.—During the last two weeks the cholera epidemic in France has been rapidly subsiding, the total deaths from that disease upon Oct. 7 in the whole country only reaching eight.

From Italy we have the report under date of Oct. 12 of only 239 fresh cases and 137 deaths in all the infected districts, and of these 115 fresh cases and 31 deaths occurred at Naples.

From Spain we have notice that at Madrid, Oct. 12, the *Official Gazette* announces the cholera epidemic ended, and that the bulletins will no longer appear.

We are thus relieved, for the time, of apprehension as to the immediate appearance of cholera in this country. Judging from past experiences, it is more than probable that it will reach this country during the coming year. We are thus forewarned and have ample time to do all that our present knowledge of sanitary science can suggest for the mitigation and control of this terrible scourge. The present is a time most fit for all who have the interests of the people at heart to bestir themselves for the securing of all needed sanitary legislation.

It seems to us that the time is at hand when the combined wisdom of our ablest medical men and jurists as well, should formulate a *code* of sanitary laws worthy of the age and of the nation—a code in which the interests of municipalities, the rights of States and the supremacy of the nation should be so wisely recognized that its provisions should secure universal approval—and as the law of the land an universal enforcement.

CHICAGO COLLEGE OF PHARMACY.—This excellent institution, which was organized in 1859, celebrated its twenty-fifth anniversary on Monday evening, Oct. 13, by the opening and dedication of its new college building.

The new edifice is at 465 State street, and has been designed and constructed throughout for the purposes of a College of Pharmacy, under the direction of those who are thoroughly conversant with the needs of such an institution. This college is now in all respects one of the best educational institutions of its kind in this or any other country.

DRS. F. C. HOTZ AND A. P. GILMORE VINDICATED.—Some time since a Mr. A. B. Lee brought suit for malpractice against these parties, who are members of the Surgical Staff of the Illinois Eye and Ear Infirmary of this city. Dr. Hotz was dismissed at the commencement of the trial, and the jury found a verdict of *not* guilty in regard to Dr. Gilmore. The whole charge was without adequate foundation.

NEW YORK STATE MEDICAL ASSOCIATION.—The regular annual meeting of this important organization will be held in Murray Hill Hotel, New York City, commencing on the 18th of November, 1884, and continuing four days. We are informed that the Association now numbers more than 300 members, and the coming meeting will undoubtedly be one of much interest and profit.

INTERNATIONAL COLLECTIVE INVESTIGATION.

WE ask the careful attention of all our readers to the following statement relating to the international collective investigation of disease proposed at the International Medical Congress at Copenhagen:

The general meeting of the International Medical Congress, held at Copenhagen on August 14, 1884, upon propositions made by Sir James Paget, Professor Ewald, of Berlin, Professor Bouchard, of Paris, and Dr. Billings, of Washington, passed the following resolutions:

1. That an International Committee be formed for the collective investigation of disease, in connection with the work of the International Medical Congress.

2. That the following gentlemen do represent their respective countries thereon:

As representatives of Denmark—Professor Trier, of Copenhagen; Professor C. Lange, of Copenhagen.

As representative of Scandinavia—Dr. E. Bull, of Christiania.

As representative of Russia—Dr. Rauchfuss, of St. Petersburg.

As representatives of Germany—Professor Ewald, of Berlin; Professor Bernhardt, of Berlin.

As representatives of Austria-Hungary—Professor Schnitzler, of Vienna; Professor Pribram, of Prague.

To whom was added by co-aptation—Professor Koranyi, of Buda-Pest.

As representative of Switzerland—Professor Despine, of Geneva.

As representatives of France—Professor Bouchard, of Paris; Dr. Lépine, of Lyons.

As representatives of Great Britain and Ireland—Sir William W. Gull, Bart.; Professor Humphry, of Cambridge; Dr. Mahomed, of London.

As representative of British India—Sir Joseph Fayrer, K.C.S.I.

As representatives of the United States—Professor Jacobi, of New York; Prof N. S. Davis, of Chicago.

As representative of South America—Dr. Gutiérrez-Ponce, of Paris.

As Secretary-General—Dr. Isambard Owen, of London.

Representatives of other countries to be hereafter appointed.

In accordance with the following resolution of the first meeting of the above committee, held at Copenhagen on the following day, viz.:

"That the Secretary be instructed to prepare a statement as to the objects of the committee, for translation and publication in the journals of the various countries represented;"

I beg leave to submit the following statement to the members of the medical profession of America.

ISAMBARD OWEN, Secretary-General.

5 Hertford street, Mayfair, London.

The main objects which the committee seeks to attain through the collective investigation of disease are to widen the basis of medical science, to gather and store the mass of information that at present goes to waste, to verify or correct existing opinions, to discover laws where now only irregularity is perceived, to amplify our knowledge of rare affections, and to ascertain such points as the geographical distribution of diseases and their modifications in different districts. It will be its endeavor to place clearly before the whole profession the limits and defects of existing knowledge, as well as to stimulate observation, and to give it a definite direction. It will be a not unimportant incidental result of its work should it tend, as is hoped, to the better training of the members of the profession in habits of scientific and practical observation, and in systematic methods of recording the facts which they observe.

The age in which we live has seen enormous advances in the sciences on which the fabric of medicine rests, such as chemistry and other branches of physics, physiology, and pathology. Each of these has taken giant strides. It must be admitted, however, that purely medical knowledge has scarcely made proportionate progress. It cannot be expected that it should do so, as it deals with the aberrations of the most complex of organisms, is of all sciences the most difficult, and demands the greatest patience and the largest accumulation of data.

Hitherto the advancement of medical science has been brought about mainly by individual effort. The value of such work in the past we in no way underrate, nor do we desire to lessen the amount of it in the future; but in medical science there is much that defies interpretation from individual experience, and many problems so far-reaching in an ever-widening field, with elements so manifold, that no single man, however gifted and long-lived, can hope to bring the whole within his range. The need, therefore, in medicine, of that combination and concentration of individual work which is adopted in many other branches of science and in commerce, and to which increasing facilities of intercommunication have given so much impulse and so much strength, cannot be questioned. Indeed, it may be said that, resting on individual research alone, medical knowledge can be advanced but slowly and with difficulty. Future progress to any great extent must be the work, not of units acting disconnectedly, but of the collected force of many acting as one. For many to act as one, organization is needed; that organization it is the purpose of our committee to supply.

Disease is many-sided; and we wish to include in our organization those who see it from every side. All, therefore, whether hospital physicians, family and school attendants, specialists, medical officers of the Army and Navy, and of workhouses and asylums, will be asked to contribute their quota of observation to the common fund.

In England and in Germany organizations for this purpose already exist, through which good work has been accomplished; and a volume entitled the *Collective Investigation Record*, containing tabulated returns, with reports upon them and other matter, is published annually by the British Medical Association. France and Austria are alive to the importance of the new method. In Scandinavia and in the United States the foundations of associations have been laid. Denmark, Russia, and Switzerland are setting their hands to the task. To unite these sev-

eral associations by an international organization for the study of various problems, and to induce the formation of similar combinations elsewhere, is felt to be a work peculiarly befitting an International Congress. Our committee is enjoined by the Congress at Copenhagen to endeavor to carry out this work, and, in compliance with that injunction, it invites the cooperation of all who have at heart the promotion of medical science and practice.

The following is the proposed method: A subject having been selected, a person or persons of acknowledged authority will be asked to write a memorandum, in the form of a short essay, upon it. The memorandum will succinctly give the present state of our knowledge. It will also point out the directions in which further research may best be made; and, with this view, will suggest a few simple and definite questions upon the subject selected. The questions will relate to matters of fact, to be elicited by observation of cases, rather than to matters of opinion.

The contemplated organization will, it is hoped, in time enable the committee to ask and collect answers to these questions from the profession at large wherever scientific medicine is studied or practiced. It will be a further duty to examine, arrange, tabulate, and deduce results from the mass of observations thus collected, due credit being given to each contributor for the information he has furnished; and reports on the results of the several investigators will be laid before the International Congress at its next meeting at Washington.

SOCIETY PROCEEDINGS.

AMERICAN GYNÆCOLOGICAL SOCIETY.

[*Continued from No. 15.*]

Ninth Annual meeting, held at the Palmer House, Chicago, September 30 and October 1 and 2, 1884.

Dr. Baker had a fatal case where a post-mortem examination showed a tubal pregnancy of six weeks. The sac was not ruptured, but blood, which came from a ruptured vessel at the end of the Fallopian tube, was found in the abdomen. It would have been a good case for operation.

A Case of Tubal Pregnancy with Rupture of the Sac, by Dr. R. B. Maury, of Memphis. The patient was the mother of five children. Five months after the birth of the last child she had an operation for lacerated perinæum. Later she had an obstinate bronchial catarrh and her menses stopped for five months. Still later her menses stopped again, and on account of nausea and other symptoms she suspected pregnancy. In the last of December she had abdominal pains and cramps and some hæmorrhage. Dec. 30 she had an attack of great pain and syncope. Her pulse was one hundred and fifty, and her temperature subnormal. There were symptoms of an intra-peritoneal hematocele and a tumor was found to the right of the uterus. After the patient had recovered from the shock the tumor was again found and the uterus was enlarged. The diagnosis of pregnancy with rupture of the sac was made. For four days there was severe peritonitis. On the sixth day a slight attack of pneumonia began. February 15 the tumor was still felt in Douglas' pouch. There was no hæmorrhage nor discharge.

In regard to etiology the only statement that the writer would make was that the husband had a stricture.

In regard to the treatment of these cases, Playfair advises laparotomy and ligation of the cord. Lusk, writing later, says that no one has ventured to practice this. Of the thirty-five cases of Tait in only one did he operate at the time of rupture, and that was fatal. The writer's conclusion is that laparotomy should be postponed till after recovery from shock.

In the afternoon session of Wednesday there was presented, The Limits of Vaginal Hysterectomy for Cancer, by Dr. Paul F. Mundé, of New York.

At the last meeting of the Society Dr. A. Reeves Jackson, of Chicago, read a paper strongly condemning the operation for removal of the uterus in cases of cancer. Most of the speakers who commented on the paper agreed with him, so that the impression had gone forth, not only in this country, but in Europe, that the American Gynæcological Society had passed its judgment in condemnation of the operation. If the judgment concerned only Freund's operation of hysterectomy by abdominal incision, Dr. Mundé would agree with it. The statistics are fatally against that operation. He thinks that most of the speakers last year had in mind that operation. The history of vaginal hysterectomy has been much better, and its future is much more promising.

Before considering the conclusions of Dr. Jackson in detail, Dr. Mundé gave an account of two cases of his own, not as a confirmation of his views, for the results were not good, but rather as an addition to the record. In the first case there was epithelioma of the cervix, which had been first noticed six months before. The uterus was enlarged to six or seven ounces. The patient was out of bed in twelve days after the operation, and in six weeks the wound was closed. A microscopical examination of a section of the mucosa was made by Heitzmann, and an infiltration of the tissue with small cells led him to predict a probable recurrence of the disease within two years. In fact it did recur in the cicatrix nine months after the operation. The second case was operated on Nov. 9, 1883. The uterus weighed three and one-half ounces. The epithelioma had extended to the vaginal vault. The hæmorrhage during the operation was great, and the patient died forty-eight hours later from shock.

The writer next considered the conclusions of Dr. Jackson which were three. First, the diagnosis cannot be made sufficiently early. Second, when the diagnosis is made there is no hope for a cure. Third, the operation is very dangerous to life.

The failure of an early diagnosis is due to the fact that the patient does not go early enough to the gynæcologist. The microscope will tell if the infiltration has begun. The laity should be impressed with such

fear of a purulent discharge that every woman would seek advice upon the appearance of the first symptoms. Out of eight hundred and twelve cases of cancer Schroeder found thirty-four suitable for operation. Ohlhausen had thirty-two. Out of one hundred and sixty cases of his own Dr. Mundé has operated but twice, and neither of those cases does he now consider suitable for operation.

The operation is of such recent origin that the facts bearing on the cure or recurrence of the disease are meagre. Of the eighty-two cases that have lived more than two years after the operation, in forty-eight there has been a recurrence of the disease in from two months to two and one-half years. Thirty-two, or thirty-nine and two-tenths per cent., are well after two years. This showing is better than that for any other cancers. It is twice as good as the record of Billroth's cancer operations. Yet when the disease returns the palliative results may be important. If it produce a temporary freedom from the disease, if it diminish pain, its value is not to be overlooked. Of course if the parametrium is involved palliative measures, as curetting, partial excision, cauterizing, etc., should be employed.

In considering its danger the writer compared its mortality with that of other cancer operations. Billroth has operated for mammary cancer one hundred and seventy times, with thirty-four deaths, or twenty per cent; for lingual cancer forty-two times with eighteen deaths, or forty-five per cent.; for rectal cancer nine times with five deaths or fifty-three per cent. Rosé (Marburg) has had a mortality, for mammary cancer of twenty-six and three-tenths per cent., for rectal cancer of fifty-three per cent., for lingual cancer of eleven per cent. Schroeder had one hundred and five high vaginal amputations with thirteen deaths, or twelve and three-tenths per cent. In his (Freund's) operations sixty-two per cent. died. In thirteen cases of supra-vaginal amputation by laparotomy thirty per cent. died. All cases of vaginal hysterectomy that have been reported number two hundred and fifty-six. Of these sixty-two, or twenty-four and six-tenths per cent. have died. The Philadelphia *Medical News* for Sept. 19, 1883, gave one hundred and sixty-seven operations as having been performed at that time. Of these there were fifty-two deaths, or about thirty-one per cent. Thus it is seen that with the increase in the number of operations, with increase of technique, with a more careful selection of cases, there is a decrease in the mortality.

The present status of the operation may be given in an answer to two questions: 1. Can vaginal hysterectomy for uterine cancer be performed without so great a loss of life as to render it unjustifiable? 2. Can we hope to secure by it complete immunity from a return of the disease? The first question can be answered in the affirmative. No answer can be given to the second question till the operation is older.

The following conclusions state the conditions and indications for the operation: 1. Limitation of the cancerous degeneration to the uterus and absolute freedom from disease of the parametrium. (Of course the disease must extend above the level of the vaginal vault and be beyond simple amputation or excision). If the finger in the vagina or rectum detect the slightest infiltration of glands, lymphatic vessels or cellular tissue, or the microscope reveal doubtful cell formation in sections of mucous membrane removed from the vaginal vault, complete extirpation should be abandoned. 2. Cancer of the cervix extending up the cervical canal to a height the precise limit of which is doubtful, thereby rendering the probability of complete removal of the disease by high supra-vaginal amputation and cautery extremely doubtful. 3. Cancer or sarcoma of the body of the uterus. (Schroeder's method of intraperitoneal amputation of the corpus uteri might be substituted. There have been seven operations with two deaths. No recurrence within two and one-half to five years in four cases. The fifth could not be traced). 4. Perfect freedom of motion of the uterus, so that it can easily be drawn down to the vulva by traction on the cervix and can be moved in any direction. This condition is absolutely indispensable. 5. A capacious vagina, permitting ready exposure of the cervix and vaginal vault and easy manipulation of ligatures and instruments. Section of the perinæum should be admitted only when a narrow vagina is the sole obstacle to a surgical operation. 6. A sufficiently vigorous condition of the general system, such as absence of other serious organic disease of other organs, so as to permit the patient to stand the shock which, however, is as a rule much less than the gravity of the operation would lead one to expect. Cachexia, if present, will probably denote such progress of the local disease as to contraindicate the operation.

In the spirited discussion which followed, Dr. Mundé replied to questions as to what was meant by recoveries in the mortality statistics that he did not know the time of death in each case, nor did he consider it important. All the deaths that were due to the operation were included in the mortality list, whether the patient died on the table or several days later.

Dr. Jackson stated that every therapeutic measure, surgical or medical, must be judged by certain underlying principles. Every surgical measure must relieve suffering or prolong life. If cancer returns it brings with it the same pain. Hence, unless the operation cures it does not relieve suffering. Over two hundred years of life have been lost by the operation. This statement is based upon statistics which show that the average length of life after discovery of a cancer of the cervix is eighteen months, and after discovery of cancer of the body it is two and one half years. The other factor in the computation is the mortality, which a year ago was 28 per cent.

The microscope can detect cancer, but it cannot tell how far it has extended, for the extension is not always by the involvement of contiguous tissues. What is meant by a successful operation? If the disease reappears it was not a success. Recurrence is not a proper term; the disease continues. The operation then is only a partial removal.

Dr. Van de Warker reminded the Society of the old opposition to ovariotomy, and thought that this operation should not yet be judged. He thought

that the cases should be divided into two classes: first, menstruating women; second, women who have passed the climacteric. In the first class he suspected that the dangers of an operation were greater.

Dr. Engelmann held that we are justified in testing the operation.

Dr. Palmer thought that the mortality would probably be reduced to ten per cent. He thought that the operation should be limited to sarcomata starting in the uterus on account of the impossibility of determining, in cases of carcinoma, whether the pelvic glands are involved or not.

Dr. Baker has operated six times, and in only one case has there been recurrence. The rest are healthy.

Dr. Scott thought that the camp was divided between the young fellows and the old fellows. He gave the history of a case which seemed favorable for operation. The uterus was small and perfectly mobile. The operation was not difficult. There was no hæmorrhage. The patient made a good recovery and fattened. But in seven months later the disease returned, and in two months more she died.

Dr. Reamy said that this operation had no analogy to ovariotomy, and any comparison was irrelevant. An ovarian cyst never returned. He spoke of a case where a patient was living three years after the discovery of a cancer, no operation having been performed. Also of another case where a patient lived four and one-half years. He thought it important to collect more of these cases. The statistics of the operation have improved, but the statistics of recurrence have not improved. He held that if the cancer is confined to the cervix, amputation should be performed. If the cancer extends to the body, the diagnosis of the extent of infiltration cannot be made, and no operation is justifiable.

Dr. Fenger, of Chicago, thought that there was theoretical reason for the operation where amputation was not sufficient, and he believed that the operation would go on until it justified itself.

In the evening a business meeting was held, with closed doors. The following offices were elected for next year: President, W. T. Howard, of Baltimore; Vice-Presidents, W. L. Richardson, of Boston, and Paul F. Mundé, of New York; Secretary, Frank P. Foster, of New York; Treasurer, Matthew D. Mann, of Buffalo; other members of the Council, J. T. Johnson, of Washington; A. Reeves Jackson, of Chicago; H. P. C. Wilson, of Baltimore; Eli Van de Warker, of Syracuse. The limit of membership was increased to 100. It was decided to hold the next meeting of the Society in Washington, on the third Tuesday of September, 1885.

The first paper presented at the morning session of the third day was the President's address. The Present Aspect of the Puerperal Diseases, by Dr. Albert H. Smith, of Philadelphia. He spoke first of the brilliant career of gynæcology, especially in the field of abdominal surgery, and of the promise for the future. He also alluded to the charge that with the rise of the specialty there had been a decrease in the feeling of modesty and a lowering of the moral tone of women, and showed how it should be disproven by care for the cultivation of a pure literature and classroom teaching.

The President then stated the different theories of purperal fever held by the essentialists, represented in this country by Barker, and the infectionists, represented by Thomas. The latter class he divided into the followers of Semelweiss, who believe that puerperal fever, like any surgical fever, results from the absorption of decomposing matter either heterogenetic or autogenetic, and the disciples of Pasteur who hold that microbes are the cause of the disease. He gave his reasons at length for differing from the essentialist theory and also from the microbe theory, holding with Billroth that microbes are present in the disease, but it is not shown that they have any causative relation to it. He thought the latter theory did harm in ascribing undue importance to the microscopic character of the lochia, and also because of the discouragement concerning treatment that must attend its acceptance by the young doctor.

In regard to treatment, he emphasized the importance of clean hands and irrigation of the vagina and uterus when necessary. For a uterine douche he used a sublimate solution, one in a thousand, at a temperature of 115° F. He closed by describing his method of washing the uterus. A hole is made in the end of a rectal bougie of the Davidson syringe and an English catheter is carried through the bougie till its end is outside the perforation. The solution is introduced through the catheter while the bougie allows the return of the liquid.

Dr. Edward Warren Sawyer, of Chicago, then read a paper entitled Some Remarks on the Occipito-Posterior Position in Vertex Labors; with an Analysis of Thirty-eight Cases.

The writer has had thirty-eight cases in three hundred and forty-nine labors, or about one in five. In three the occiput was to the left and in thirty-five to the right. Twenty-six cases were in primiparæ. This fact suggests, concerning the etiology of the condition, that the unyielding abdominal walls of the primipara do not conform well to the back of the fœtus and force it into the hollow of the spinal column. Dr. Sawyer thinks that the occiput does not rotate forward as often as is generally taught. The rotation occurred in only two of his cases. In many of the cases there were imperative indications for interference before the vertex reached the floor of the pelvis, but had he waited he did not believe that rotation would have occurred. He would never leave the fœtus stationary more than two hours on account of danger to the soft parts of the mother. As soon as a positive diagnosis is made, which can be accomplished by introducing the hand in front of the face, he would endeavor to rotate the head by combined external and internal manipulation with the hands. When it became necessary to deliver the child by forceps he called attention to the importance of keeping the head flexed and making traction in the right direction. For this purpose he recommended his modification of Simpson's forceps, which consisted in giving the instrument a continuous posterior curve.

Dr. Richardson believed that the head would rotate when it reached the pelvic floor if it were kept prop-

erly flexed. Improper use of the forceps was generally the reason why it was sometimes caught in the middle strait partly extended. The proper treatment in such case was to introduce the forceps and produce flexion. For this purpose he often used the forceps reversed.

Dr. Reamy thought that rotation would generally occur, but he agreed with Dr. Sawyer in the statement that interference is best to diminish suffering and to lessen danger to both mother and child. The time for interference is when dilatation is sufficient. The forceps should be thoroughly applied, and the head pushed up as far as possible and rotated. The dorsal position of the patient is best.

Drs. Johnson, Howard and Englemann made remarks.

President Smith said that nothing was known concerning the etiology of the position. In regard to interference, if the diagnosis is made before the head is engaged, place the patient in the knee-elbow position and introduce the hand and gently rotate. Never attempt to rotate after engagement of the head. The best way is to put on the forceps and move the head on its biparietal axis to complete flexion. Then reapply the forceps and make traction, leaving nature to rotate, or the whole may be left to nature after flexion is completed.

At the afternoon session the President-elect, Dr. Howard, was introduced. The thanks of the Society were then given Dr. Smith.

Dr. Geo. J. Engelmann, of St. Louis, next read a paper on A Rare and Fatal Form of Sepsis without Symptoms.

This dangerous and little recognized form of sepsis is characterized, negatively, by a more or less complete absence of fever, pain and the other symptoms of septicæmia. Intuition rather than skill seems necessary for its diagnosis. It may be acute or chronic, heterogenetic or autogenetic. Where the prognosis seems good and the symptoms least the danger is greatest. It disproves Barker's statement when he says that the intensity of the symptoms shows the amount of poison absorbed and the danger. Several typical cases are given to illustrate this characterization and prove the fatality of the disease.

Dr. Richardson had had five or six cases which confirmed the writer's statements. He had noticed a slight diarrhœa in all of his cases. But the most remarkable fact was the peculiar mental condition of the patient, who seemed to herself to be doing nicely till the last. The paper was further discussed by Drs. Meyers, Reamy and Johnson.

After the reading of the following papers by title the Society adjourned :

The Physiognomy of the Vulva as a Sequence of Anal Disease, and the Cause or Sustaining Cause of Uterine Disease, by Dr. Isaac E. Taylor, of New York.

The Early History of the Treatment of Vesico-Vaginal Fistula in the United States, and the Statistics of the Several Modes of Operating, by Dr. Nathan Bozeman, of New York.

Periodical Symptoms in Uterine Disease, by Dr. George J. Englemann, of St. Louis.

Contributions to the Topographical and Sectional Anatomy of the Female Pelvis, by Dr. David Berry Hart, of Edinburgh.

Fibro-Myomata and Fibro-Cystic Myomata of the Uterus—their Diagnosis, Prognosis, Pathology and Treatment; with Cases and Specimens, by Dr. R. Stansbury Sutton, of Pittsburgh.

On the Ring of Baudl, by Dr. William T. Lusk, of New York.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, September 24, 1884.

The value of blood-letting in the treatment of apoplexy was lately discussed at the Therapeutic Society of Paris, when most of the members condemned the practice as a mere routine measure. Even the non-professional public are so imbued with the idea that bleeding is indispensable in this case, that a certain amount of pressure is put on the medical attendants to open a vein, and should the case prove fatal without the operation being performed, the unfortunate physician is sure to be blamed. Dr. Dujardin-Beaumetz does not approve of blood-letting in the condition usually termed apoplexy, which has no definite signification. Apoplexy may result from the rupture of a miliary aneurism, or from cerebral anæmia, whether produced mechanically or otherwise. In either case the drawing of blood would not only be useless, but positively dangerous, as it would tend to weaken the patient unnecessarily, and fulfil no useful indication. Even in cerebral inflammation nothing is to be gained by it. The only case in which the orator thought blood-letting might prove useful was congestion of the brain, in which case it is employed to prevent an attack of apoplexy, but the diagnosis of such a condition is not always an easy matter. Whenever, however, the patient is affected with hemiplegia, and this lasts for any time, even twenty-four hours, one may with certainty conclude that it was not caused by cerebral congestion, but by hæmorrhage or anæmia. We shall therefore have to resort to other measures, such as revulsives, which are as efficacious, but less dangerous than blood-letting.

The question as to whether a tuberculous patient suffering from fistula in ano may be operated on for the cure of the latter has often been mooted in the profession, and Dr. Jannel has again brought the subject before the Surgical Society of Paris. After a discussion pro and con, Professor Verneuil concluded that from his experience he thought it advisable that the operation, if necessary, should be performed as early as possible; for the longer it is put off the greater the risk to the patient, and to the success of the operation which will relieve him of an infirmity which, if left to itself or treated by palliatives, can but aggravate his general condition.

M. Ritter lately brought to the notice of the Pharmaceutical Society of Paris the vesicant properties of chloral, which may be utilized in certain cases

where it would be unsafe to employ the ordinary blisters made of cantharides. Spread on sticking plaster, which is slightly heated and applied to the skin, powdered chloral produces in a very short time and without great pain the same effect as a Spanish fly blister, which is produced about six hours after its application. In this form the chloral possesses the sedative and analgesiant properties which may be utilized in the treatment of neuralgic and rheumatic pains.

M. Mairet has communicated a work to the Academy of Sciences on the biological relations between phosphoric acid on the one hand, and general nutrition and the nutrition of muscle on the other, and after a series of observations he summed up his conclusions as follows:

1. With reference to muscular work, when the intensity of the latter surpasses the richness of the food, it increases the elimination by the urine of the nitrogen and phosphoric acid combined with alkalies.

2. The muscles employ phosphoric acid to produce work; the phosphoric acid which is found in excess in the urine under the influence of muscular work is the phosphoric acid of the wasted tissues.

3. The elimination of phosphoric acid is connected with the nutrition and function of the muscles; muscular work marks its action on the phosphoric acid eliminated by the urine in increasing the amount of alkaline phosphates.

At a subsequent meeting M. Mairet brought to the notice of the Academy the modifications which intellectual work produces on the elimination of phosphoric acid, and the relations that exist between this acid and the nutrition of the nervous system. In this paper the author makes out, 1, that phosphoric acid is intimately connected with the nutrition and the function of the brain. In its functions the brain absorbs the phosphoric acid combined with the alkalies and sets free the phosphoric acid of the earthy salts. 2, that intellectual work retards the general nutrition. 3, that intellectual work modifies the elimination of phosphoric acid by the urine, it diminishes the phosphoric acid combined with the alkalies and increases the phosphoric acid of the earthy salts.

It is curious to note that while there is a growing tendency in the profession towards specialism, specialists show a tendency to extend their views in a more general way. At a clinical lecture at the Hotel-Dieu, Professor Panas endeavored to impress on his hearers the necessity of medical men to have a greater scope in their professional education so as to be able to deal with all cases that may be submitted to their care without always having resource to specialists.

This advice is all the more valuable as it comes from a gentleman who, though a general surgeon, has adopted ophthalmology as a specialty without prejudice to his other attainments as surgeon and physicians. As an ophthalmologist, however, he felt bound to dwell upon the importance of this branch of medicine and surgery, as it is too often depreciated, and those who occupy themselves specially with the diseases of the eye are generally looked down upon and are even at times ranked among quacks. Those who act thus, he added, forget that the immortal discovery of Helmholtz has rendered ophthalmology the surest, and the best known branch of medicine; they forget also that, thanks to the ophthalmoscope, one can study the phenomena of the circulation, a thing which can not be done directly with the eye in any other part. Moreover, the eye is found to be the seat in which may be reflected general or constitutional affections.

Hence Professor Panas concludes that a regular ophthalmologist, far from confining his knowledge to the eye, ought to be an encyclopedist. It is an opinion also widely spread in the profession that ophthalmology constitutes only an insignificant part of medicine, and he has often heard it repeated that one or two months suffice to learn the science of ophthalmoscopy, and it is against this idea that Professor Panas directs his efforts. In concluding his lecture, the learned professor expressed himself to the following effect: "Scarcely a day passes without my being required to give my advice whether in a prognostic or diagnostic point of view, on general affections in patients sent from the different hospitals or by general practitioners. This fact will serve to show the necessity of studying ophthalmology, which is daily increasing in importance, and the ophthalmoscopic examination of patients is as necessary as that by auscultation or percussion, or the analysis of the urine. The ophthalmoscope not only helps the physician in his diagnosis of a general malady, but it often leads him to the discovery of a morbid condition that would otherwise have escaped his attention."

In a very interesting article reproduced in the "*Journal d' Oculistique*" of Paris, on the influence of hot entire baths and hot footbaths on the ocular circulation, the author, Dr. Kacavurow, states that he had performed experiments on 15 subjects, 12 of whom had sound eyes. The temperature of the water of the bath was 104° F.; the duration of the immersion of the body was 15 minutes. In the majority of the cases, the optic papillæ were pale; the arteries of the retina were diminished in calibre; the veins of this membrane were slightly distended; the intra-ocular pressure was diminished. The author attributed these phenomena to the weakening of the action of the heart and to the lowering of the blood pressure. He however concludes that the preceding effects are too weak and too uncertain to induce practitioners to introduce whole baths into ocular therapeutics. As for footbaths, the author thought that they had a very different effect from what they are generally supposed to have. In the 15 subjects on whom the experiments were performed the pediluvia produced no paleness of the optic papillæ, nor a diminution of the calibre of the arteries, nor any lowering of the intra-ocular pressure. In the greater number of the cases, there were on the contrary evident phenomena of congestion of the eye which lasted about ten minutes after the footbath. A. B.

BOOK REVIEWS.

HEALTH AND HOW TO PROMOTE IT, FROM INFANCY TO ADVANCED AGE. By RICHARD MCSHERRY, M.D. Second edition. D. Appleton & Co., New York: 1884. Cloth; 185 pages.

As stated in the preface, the author directs "attention principally, almost entirely, to personal matters under individual control; that is, to what each individual may do for himself."

The style is simple and pleasing, and not at all technical. The fault of the work grows from the fact of its unscientific nature, and from its compilation from various, often conflicting writers. This may be illustrated by the remarks on alcohol. He says it is "a stimulant in small doses, a narcotic in large doses." This is true only of certain individuals, or of certain functions of the body. The normal effect of alcohol on the healthy individual is probably always narcotic. At another page this fact is made evident by a reference to Mr. Bryant, who is quoted as saying: "I am a natural temperance man, finding myself rather confused than exhilarated by wine." And again, in a quotation from Dr. Edes: "It may be doubted whether such a condition as true stimulation by alcohol exists for the perfectly healthy man in a normal condition. The early phenomena, if carefully observed, are better explained as the beginning of intoxication."

The book is worthy of a place in popular medical literature, for its perusal will benefit and enlighten the average citizen respecting many things of which he is often grossly ignorant.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM OCTOBER 4, 1884, TO OCTOBER 10, 1884.

Clements, B. A., Major and Surgeon, in addition to present duties, to take charge of the office of the Medical Director of the Dept. during the temporary absence of that officer. (Par. 1, S. O. 195, D. of Mo., Sept. 29, 1884.)

Happersett, John C. G., Major and Surgeon. will be relieved from duty in Dept. of the East and ordered for duty at Willet's Point, New York.

Woodruff, Ezra, Captain and Assistant-Surgeon, granted leave of absence for 4 months. (S. O. 235, A. G. O., Oct. 7, 1884.)

Cronkhite, Henry M., Captain and Assistant-Surgeon, assigned to duty as Post Surgeon, Fort Reno, Ind. T. (S. O. 197, D. of Mo., Oct. 2, 1884.)

Crampton, L. W., Captain and Assistant-Surgeon, granted leave of absence for 1 month and 10 days. (S. O. 60, Hdqr's Div. of Atlantic, Oct. 2, 1884.)

Powell, J. L., Captain and Assistant-Surgeon, granted leave of absence for 1 month, on surgeon's certificate of disability.

Spencer, Wm. G., Captain and Assistant-Surgeon, granted leave of absence for 1 month. (S. O. 204, Hdqr's Dept. East, Oct. 8, 1884.)

McCreery, Geo., First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Meade, D. T. (S. O. 115, Hdqr's Dept. of Dak., Oct. 6, 1884.)

Taylor, A. W., First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Omaha, Neb. (Par. 3, S. O. 87, Hdqr's Dept. Platte, Oct. 3, 1884.)

Black, C. S., First Lieutenant and Assistant-Surgeon, granted leave of absence for 15 days, to take effect this date. (Par. 3, S. O. 131, Hdqr's D. of Tex., Sept. 29, 1884.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING OCTOBER 11, 1884.

Lippincott, G. C., Passed Assistant-Surgeon, granted sick leave Oct. 4, 1884.

Whiting, Robert, Passed Assistant-Surgeon, to the Naval Hospital, New York, Oct. 6, 1884.

Brown, S. A., Passed Assistant-Surgeon, resignation accepted, Oct. 7, 1884.

Brush, George R., Surgeon, detached from the Vandalia, and placed on waiting orders, Oct. 8, 1884.

Craig, Thos. C., Passed Assistant-Surgeon, detached from the Vandalia, and placed on waiting orders, Oct. 8, 1884.

Ayers, Jos. G., leave of absence for 1 month, Oct. 10, 1884.

Oberly, A. S., Surgeon, to the Naval Hospital, Portsmouth, N. H., Oct. 10, 1884.

Cleborne, C. J., Medical Inspector, detached from duty at Portsmouth, N. H., and placed on waiting orders, Oct. 10, 1884.

Steele, Jno. W., Passed Assistant-Surgeon, detached from the Brooklyn, and placed on waiting orders, Oct. 10, 1884.

Boyd, Jno. C., Passed Assistant-Surgeon, to duty at Navy Yard, Washington, D. C., Oct. 10, 1884.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE, JULY 1, 1884, TO SEPTEMBER 30, 1884.

Bailhache, P. H., Surgeon, to proceed to Delaware Breakwater Quarantine Station as inspector, September 10, 1884; to investigate reported pollution of Potomac River water supply, September 20, 1884.

Miller, T. W., Surgeon, granted leave of absence for fourteen days, July 10, 1884; detailed as president Board of Examiners, September 2, 1884.

Wyman, Walter, Surgeon, detailed as member of Board of Examiners, September 2, 1884.

Long, W. H., Surgeon, granted leave of absence for twenty days July 30, 1884.

Purviance, George, Surgeon, detailed as recorder Board of Examiners, September 2, 1884.

Stoner, G. W., Passed Assistant-Surgeon, to proceed to Lewes, Del. (Delaware Breakwater), as inspector, July 25, 1884; to act as quarantine officer at Delaware Breakwater, July 31, 1884.

Fisher, J. C., Passed Assistant-Surgeon, granted leave of absence for thirty days, August 23, 1884.

Goldsborough, C. B., Passed Assistant-Surgeon, granted leave of absence for thirty days, July 12, 1884; leave of absence extended thirty days on surgeon's certificate of disability, August 11, 1884; leave of absence extended thirty days, without pay, September 11, 1884.

Heath, W. H., Passed Assistant-Surgeon; granted leave of absence for thirty days, September 8, 1884.

Guitéras, John, Passed Assistant-Surgeon, granted leave of absence for thirty days, September 24, 1884.

Banks, C. E., Passed Assistant-Surgeon, granted leave of absence for thirty days, August 27, 1884.

Bennett, P. H., Assistant-Surgeon, to proceed to Buffalo, New York, for temporary duty, September 19, 1884.

Glennan, A. H., Assistant-Surgeon, to proceed to Mobile, Alabama, for temporary duty, July 7, 1884.

RESIGNATION.

Fisher, J. C., Passed Assistant-Surgeon, resignation accepted by the Secretary of the Treasury, to take effect September 30, 1884, August 21, 1884.

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ORIGINAL ARTICLES.

THE CONSIDERATION OF SOME POINTS CONNECTED WITH PROTRACTED LABOR.

BY WM. H. TAYLOR, M.D., CINCINNATI, OHIO.

Read in Section of Obstetrics and Diseases of Women of the American Medical Association, May, 1884.

The character of the audience before whom I have the honor to appear in response to the polite invitation of our esteemed President, forbids that I should enter into any consideration of the ordinary phenomena of a protracted labor, and equally inappropriate would it be to discuss the more generally adopted methods of treatment.

The second and third stages of labor have of recent years claimed much attention from obstetric writers, so that we are warranted in saying that the principles of their management are well established, and hence need no discussion at this time.

Such exclusion limits me to the study of detention from some causes acting during the earlier processes of parturition, and it is to such conditions that I ask your attention. In addition to my own convictions of the importance of this subject, my justification for bringing such a topic before you is found in no small degree in the opinion of Prof. J. E. Taylor recently expressed in these words: [1] "The mind of the profession has dwelt most generally, in instrumental deliveries, on the state or condition of the os uteri,—its thinness or thickness, its rigidity or its œdematous condition, its hardness or its tenseness. The profession has, as I believe, not considered the great difference relating to each of these points as the guide to the use of the forceps either in natural or complex labors," and in the assertion of a late German writer, that [2] "the recent progress in midwifery is not characterized by the production of remarkable new instruments, but chiefly in rendering more simple and definite our principles of action, in greater accuracy of diagnosis and clearer indications for active interference."

From such opinions is deduced the proposition that there are various conditions of the parts which are the result of varying causes, and with due regard for cause and effect demand different methods of treatment. Accepting this proposition as true, it forms the basis of my remarks, and I desire to be understood as excluding from consideration all marked deformities and all great irregularities of position of the fœtus.

Until recently, almost universally our scope of active interference in labor has been after dilatation of the os, or even engagement of the head, the patient being allowed to suffer for hours with the consolation, that "when the womb was opened she would progress faster." That we are growing out of such expectant treatment you all know, and just here we are met with the antique admonition that "meddlesome midwifery is bad." But with the increased knowledge of the present day, is it not true conservatism to *avert* danger and difficulties by economizing our patient's powers, by not allowing pain to continue unmitigated for hours? Is it not more perfectly fulfilling the purpose of our professional attendance, promptly to respond to the first intimations of evil and not wait to be driven to a last resort? And to an early recognition of the existence of untoward conditions our studies in the near future must be directed; and of prime importance is the proposition that the *lapse of time* alone must not be made a criterion by which to determine the effects of the labor. A point which I think of much importance—though to many only conventional—is the datum which distinguishes between the first and second stages of labor. An examination of more than twenty of the more recent systematic works on obstetrics shows that all but three make "full dilatation of the os," the termination of the first stage. Prolongation of labor before rupture of the membranes is much less likely to have ill effects than equal protraction after their rupture, and doubtless the majority would estimate the evil effects of pressure on the maternal tissues or the jeopardizing of the child from uterine contraction from the time the membranes rupture, and therefore the indications for operative interference would be based largely upon the lapse of time after such rupture. In the well-known discussion on [1] "Forceps and their Alternatives" in the London Obstetrical Society, a great diversity of opinion prevailed as to whether or not a prolonged first stage is injurious, some high authorities assuming the negative, and others of equal eminence asserting that sometimes it is. A careful study of this discussion will show that the first class referred to cases before rupture of the membranes, the latter spoke of cases where the membranes had been ruptured.

[1] Taylor, Gynæcological Transactions, vol. iv, 253.
[2] Lumpe, Archiv f. Gynäkologie, Vol. XXI-I, 42.

[1] Obstetrical Transactions, vol. xxi.

In a proposed operation the degree of dilatation of the os is a matter of far less consideration than formerly, whereas rupture of the membranes can never be an insignificant fact in the course of the labor. I submit, therefore, that a more definite period could be fixed, and a far better guide for action would be established if rupture of the membranes were made the boundary between the first and second stage. Now, while I believe that the dangers to mother and child resulting from pressure, and also of sepsis, almost exclusively supervene after rupture of the membranes, yet there are other evil influences which manifest themselves during the first stage, and which urge us to active interference.

All recognize the depressing influence of severe pain, whatever its source, consequently inducing the dangers of exhaustion; and further, as suggested by Lusk,[1] possibly the inhibitory influence of the uterine nerves of cerebro-spinal origin may cause the suspension of uterine action, thereby prolonging the labor. With such view, the existence of unduly severe or prolonged pain during the first stage demands our aid.

But it is especially to conditions manifest in the lower segment of the uterus that I would call attention. I use the expression "lower segment of the uterus" purposely, for the all but universal reference to the condition of the os as indicative of the general state, or as determining the propriety of a certain line of treatment, is, as I believe, to say the least, often telling but part of the truth, and sometimes even leading to positive error. Further, in cases where the structure of the uterus is injured by pressure, if, unfortunately, we have opportunity for thorough examination, we not rarely find serious lesions far above the os. It is necessary, therefore, to consider the condition of the cervix and body, also.

During the last week or two of gestation œdema of the lower portion of the uterus develops, by which the cervix is prepared for dilatation, and, as every practitioner knows, the cervix may be dilated for days before the active labor begins; but the obliteration of the canal is the result only of uterine contractions, being effected normally by the projection of the fluid wedge into the lax cervix and the pressure of the presenting part, but normal condition of the parts and proper relation of the forces do not always obtain. A commonly asserted cause of delay is a "rigid os." That such a condition exists *per se*, I doubt. The os uteri yields to the pressure exerted by the bag of membranes propelled by the uterine contractions, and the tissues are concurrently prepared for dilatation, and I believe that efficient uterine contraction will be accompanied by proper changes of the tissues of the cervix and os. Delay in labor is attributed to a resisting os, which really is due to inefficient uterine action, and I believe the constantly practiced dilatation of the os by digital distension is more efficient by inducing uterine contraction, than by direct local action.

And now just a reversed condition may obtain, [2]the os more or less dilated, but such a state of rigidity that however strong and active the uterine contractions may be, and however forcibly expulsive the efforts of the patient, the rigidity, the result of some local irritation, *e. g.* laceration, or premature rupture of the membranes, prevents the progress of the labor for an indefinite time, the size of [1]the os, "is no criterion of the progress the labor has made; the os may be small, and yet the cervix may be thinned and attenuated, and the patient in extreme danger."

Passing beyond the cervix we encounter a multiplicity of impediments to delivery, which, because of the inaccessibility of the parts when the os is imperfectly dilated, are difficult of appreciation.

All are familiar with the symptoms of excess of liquor amnii, but rarely do we see notice of the effects of too little fluid. [2]Skene says: "A tense condition of the membranes may prevent bulging down to form a 'bag of waters,' in such cases the membranes appear to the touch as if stretched across the os uteri, but do not engage in it, or what is not unfrequently the case, the head lies close down over the os (I should say cervix), so as to prevent the liquor amnii from forcing the membranes into the os, in such cases the liquor amnii is usually scanty." As further indication of paucity of fluid, I should add a small inelastic uterine tumor, and the resonance of the intestine reaching close to the solid portion of the uterine mass. Where such small amount of fluid exists we may have the evil results of pressure, with intensity almost equal to those after rupture of the membranes.

As our cities become larger, and poverty and antihygienic influences are increased and intensified, we shall undoubtedly find malformations of the pelvis more common, and consequently, especially in our urban population, may we look for retarded labor from this cause, and I am satisfied of the correctness of [3] P. Müeller's assertion, "that a great many irregularities in parturition which formerly were attributed to other causes are dependent on some form of contraction of the pelvis." We may not be able to measure the diminution accurately, but it is well-known that conditions develop during labor which suggest improper relations between the head and the pelvis. (The membranes may dilate the cervix to some degree, and then further expansion cease, notwithstanding active uterine effort continues, meanwhile the head remains above the brim, or but imperfectly engaged in it, under these circumstances we may safely assert the existence of an abnormal condition, most probably a slight contraction of the brim, and as is so often the case, if a malposition of the head be found, our suspicion is well nigh confirmed). The question of treatment of labor delayed before rupture of the membranes is the one which at present demands much attention, the management of the second and third stages have been well determined, but the treatment of the first has received comparatively little attention. Where the head follows the amniotic sac as it dilates the cervix, but progress is slow with intolerance of pain by the patient, the use of ether to slight anæsthetic effect will hasten relaxation, or it may be expedient to give a large dose of

[1]Lusk, Science and Art of Midwifery.
[2]Wigglesworth, *Obstet. Jour.* Great Britain, v. 368.

[1]Stephenson, Obstetrical Transactions, xxi, 152.
[2]Skene, *Amer. Jour. Obstetrics*, vol. vi, 92.
[3]P. Müeller, Archiv f. Gynäkologie ,Vol. XVI, 2.

opium to stay all action for a time. Where pains continue, "but the os does not expand, or the head does not adapt itself properly to the os, or the pains be ineffectual or active and strong with no advance, the membranes ruptured or unruptured," the os uteri from some cause or other is expanded to a limited extent, I believe dilatation of the os by Barnes' dilators, or better, Skene's, because they may be used earlier, to be followed by the forceps, as advocated by Prof. Taylor, is the proper treatment. I am satisfied that much misapprehension exists as to the immediate purpose of applying the forceps thus early. The object is not delivery of the child, but to bring the head into the cervix to accomplish its dilatation, by doing which, of course the cause of detention, be it what it may, is overcome. Now this being the purpose makes the operation different from, and far simpler, than complete delivery from the superior strait, an operation which all will agree is always serious and not to be lightly undertaken. Among the obstacles to delivery I have mentioned slight contraction of the brim, and with recognition of that condition we are plunged into a dilemma. Given a moderate contraction of the conjugate at the brim, a head not engaged, uterine action having continued for some time, the membranes unruptured, what shall we do? Shall we wait? The condition of the head may help us to an answer. [1]If the fontanelles are small, if ossification of the bones is firm, if but slight overlapping of the parietal bones, we shall gain nothing by delay, the head may *appear* to lengthen by development of a caput succedaneum, or if any real advance takes place it will be so slow that it will be more than counterbalanced by the evil results of pressure and pain; if a compressible head be found we may hope for good results from waiting.

If we deem it inexpedient to trust to natural efforts, what then? With forceps at the brim there is always danger, and while undoubtedly it is the operation, if the head be fixed, yet the opinion is very general that it is not the operation with the head movable above the brim, but that version is the method for delivery. I do not propose to discuss this question, for the exhaustive essay of [2]Goodell needs no supplement from me; but I venture to suggest that it be resorted to far earlier than is usually advised. Version is divested of all its dangers and much of its difficulty, if performed before the membranes rupture, and before the woman is exhausted by long continued suffering and anxiety. And to the child we have the dangers of a breech delivery, which are [3]less than unaided delivery through a pelvis contracted to so slight a degree that unaided delivery is possible, and it has the advantage of the delivery of the after-coming head in such conditions.

Of the class of cases to which Johnson, of Dublin,[4] refers as constituting the most frequent cause for his operation, viz.: "Early rupture of the membranes, with escape of the liquor amnii before dilatation of the os, thereby allowing the fœtal head to press injuriously on the soft parts of the mother," I think we can only concur in his practice of early use of the forceps. But I give to the Association the very recent suggestions of Fritsch,[1] viz.: that long continued pressure of the uterus without liquor amnii is dangerous to the mother, and probably will result in the death of the child. The co-existence of these evils are his justification for early craniotomy in such cases, a suggestion which will meet with little approbation in this country till we are assured that the child no longer has claims on our protection.

[1]Dempsey, Dublin *Med. Jour.*, No. 74.
[2]Goodell, International Med. Transactions, 1876.
[3]Playfair, System of Midwifery.
[4]Johnson. *Obstet. Jour.* Great Britain, ii, 808.

NEOPLASM OF THE LACHRYMAL GLAND.

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Read in the Section of Ophthalmology, Otology and Laryngology of American Medical Association, May, 1884.

Neoplasms of the lachrymal gland are of very rare occurrence, and great care is necessary in the examination of the same to be certain of the origin of the morbid growth. But whether it originates in the gland proper, or begins its existence in the neighboring tissues and passes into the gland by the natural process of contact and extension, can only be determined after the extirpation and by microscopical examination. The character of the tumor can only be ascertained by the same manner of examination.

The following two cases illustrate the two processes of origin as above mentioned, *i. e.*, that in the gland proper, and that external and affecting the gland secondarily.

The first case, Lydia Mayberry, aet., 55, came to me in May, 1877, with a lump, as she called it, growing from under the brow. The examination revealed a tumor of a flat almond shape fully 1½ inches long lying over the eyeball and protruding from under the brow. The eyeball was also protruding somewhat and pushed downward and inward, with its movements upward and outward restricted. This state of affairs, by her history, had been going on for several years, and without the least pain.

The tumor had a firm but elastic consistency, and the end of my finger could be carefully pushed in above and below it; and by its movement, feeling and position it could be diagnosed as the lachrymal gland very much increased in size. Pressure on the growth as well as on the eyeball caused some pain. Nothing abnormal was to be seen on nor in the eyeball. V. $^{20}/_{XX}$.

Extirpation of the morbid growth was the only remedy to be recommended, and to which consenting, she was the following day etherized, and after an incision of about an inch in length was made along the outer edge of the brow through the skin and underlying tissue to the tumor, it was clearly seen by its characteristic appearances to be of glandular construction. By careful dissection the whole of the enlarged gland was removed, and found to be 1½ inches

[1]Fritsch, Volkmann, *Klinische Vorträge*, No. 231.

long by the same in depth, and twice the normal thickness.

The wound healed readily, but ptosis remained with some contraction of the tissue of the eyelid over the eyeball in the region of the wound.

The extirpated tumor was hardened and by microscopical examination was found to be an adenoid growth of the gland, the degenerative process springing from the centre while the outer or peripheral part appeared comparatively free from the alveolar cells, but containing large inflammatory cells.

I saw the patient two years ago and there had been no return of the morbid growth; the lid remaining as above described after the operation.

The second case, Frederick Koetzle, aged 47, a well-built and nourished German, came to my clinic in the Will's Eye Hospital, December, 1880, to have a swelling of the right upper lid examined, which he first noticed in October previously, and which had increased so that the eye could not now be opened as wide as the other.

The general appearance of the eye was one of puffiness of the upper lid, with a feeling as if the lachrymal gland was enlarged and protruding slightly from under the orbital ridge. On opening the lid very widely, with the ball rolled downward, a fulness was seen projecting from the outer and upper fold of the conjunctiva. The pupil was slightly contracted. Vision $^{20}/_{xx}$. There was no pain of any account. At times a feeling of fullness only.

February 7, 1881, he complains of a rapid increase of the neoplasm, which now comes well out from under the supra-orbital arch, and is felt as a hard mass extending well over the eye-ball toward the inner canthus, and also down around the outer canthus. It does not have a glandular feeling, but that of a solid, firm mass, with the exception of one place of indentation or separation directly over the eyeball, near the centre of the ridge. Vision reduced to $^{20}/_{xl}$. Ophthalmoscopic examination shows choroidal congestion only.

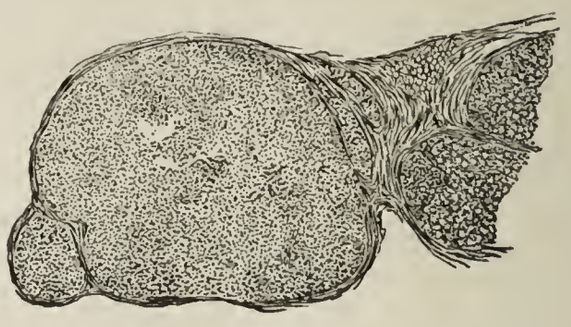
Local applications and inward treatment were tried faithfully, without any beneficial effect. By May following the morbid growth had increased so as to press the eye ball downward and inward, and there is an impossibility to raise the upper lid.

By careful palpation a hard substance could be felt extending all along the upper part of the orbit above the eye, and as far back as the finger could be pushed. There was some dull aching pain now accompanying it.

Extirpation being the only chance for relief, he was admitted into the hospital May 21, on which day the whole of the tumor was carefully removed without an anæsthetic, as it was found inexpedient to use any on account of heart trouble.

Examination of the part removed showed the lachrymal gland was entire, but much enlarged with new growths extending from either side; that toward the nasal side fully twice as large as the gland, and of a firm, solid consistency. A continuous fibrous capsule appeared to hold the whole together.

My friend Dr. Carl Seiler was kind enough to make a microscopical examination for me. After hardening, a thin section throughout the tumor was made, which shows at one extremity an aggregation of small granular, round cells, held together by a delicate stroma, while the other shows the normal structure of the gland slightly infiltrated by inflammatory cells. There are no alveolar cells to be seen in the gland. The whole growth is surrounded by a capsule of clear, fibrous tissue.



The wound from the operation healed readily without suppuration, and the eye looked well for some time. But after awhile a secondary growth appeared and grew so rapidly that by October of the same year there was a tumor lying in the same place, but nearly twice the size of the former.

This was again removed Oct. 22, 1881, and a section prepared for the microscope shows no glandular structure, but small granular round cells throughout, and is not surrounded by a capsule. The tumors therefore must be considered as round-celled sarcomata, and originating external to the gland, but appears under its external lining capsule.

June 2, 1883, the patient returned to my clinic after an absence of 18 months to show me that there was another return of the morbid growth taking place on the outer side of the eye, covering the globe almost up to the edge of the cornea. It is a hard, smooth, roundish tumor, apparently under the conjunctiva but not attached to the sclerotica. There is no actual pain attending it, only a dull feeling in bad weather. All the other parts surrounding the eye appear to be in good condition, except the inability to raise the lid. Vision reduced to $^{6}/_{24}$. D. ($^{20}/_{lxx}$), while that in the L. E. is $^{6}/_{9}$. D. ($^{20}/_{xxx}$). The man is in good health and attends to his work every day.

The etiology and character of morbid growths of the lachrymal gland and its surrounding tissues is not different from those occurring in other glandular and muscular parts of the body. So seldom do injuries of this part take place that really there can be no cause ascribed to or suspected for the diseased growth.

When the neoplasm is confined entirely to the gland and does not extend into the neighboring tissue, the careful extirpation of the tumor or gland is really a permanent cure, no return of the growth taking place, as in the first case described. But when the origin is either external to the gland, or when in the gland and exuding therefrom into the surrounding tissue, a return is more or less likely to occur, as in the second case mentioned.

In the study of the literature of tumors of the lachrymal gland we find different forms of morbid growths described by the several writers, such as

hypertrophy, adenoma, adenoid, colloid, sarcoma, myxoma, fungus, encephaloid, scirrhus, etc., but Prof. Becker claims that the adenoid form is the only one, and covers the first eight forms. (*See Graefe and Saemish, Handbuch der Augenheilkunde, pt. VII.*) I think he is not far from correct, for in an adenoid growth of the gland we have more or less some of the characteristics of at least five or six of the several forms above mentioned. As in my first case there was hypertrophy, alveolar cells, myxomatous cells, that is cavities filled with a gelatinous mass, etc. In cases of sarcoma, fungus, encephaloid, etc., I think the origin is in the tissues external, and by proliferation extends into the gland (as in my second case), and may have been described as a primary instead of a secondary affection of the gland.

Many attempts at reducing these tumors by absorption with external and internal remedies have been made, but without success. Free and complete extirpation is the only thing to be done, and the earlier it is accomplished the better, and the greater likelihood of a permanent cure. Care must be taken to know thoroughly the anatomy of the part and eyeball, so that in the operation no injury will be caused to the globe, the optic nerve or ocular muscles.

EPISTAXIS.

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Read in Section of Ophthalmology, Otology and Laryngology of the American Medical Association, May, 1884.

It is the duty of the specialist to provide remedies for the various diseases to which the organs in his specialty are liable, and be prepared for their accidental emergencies.

Of all the hæmorrhages which the rhinoscopist and laryngologist are called upon to relieve, epistaxis or nose-bleed is by far the most common. I propose in this paper to limit myself to its consideration.

We learn from Galen that the word hæmorrhage was limited by Hippocrates to flux of blood from the nostrils, and he has been followed in this restrained use of the term by Sauvages, and most of the nosologists of that time. It was Vogel who first pointed out the inconvenience of this limitation, and exchanged hæmorrhagia for epistaxis, thus liberating the former term to express flux of blood generally.

When we reflect on the structure of the schneiderian membrane, there being a considerable net-work of blood-vessels, which traverse it in every direction, and are covered with a layer of tesselated epithelium, which is also provided with a nearly continuous layer of branched mucous glands, the ducts of which open upon its surface, it is not surprising that its occurrence is so frequent.

Persons of all ages, sexes, constitutions and temperaments are liable to be attacked with this form of hæmorrhage.

As in all hæmorrhages, two opposite pathological conditions of the blood-vessels are observed in epistaxis; the one, an hyperæmic or entonic condition, in which the extreme vessels are ruptured by the determination of a greater quantity of blood than ordinary to the vessels of the head, as in whooping-cough, tumors of the neck, cardiac hypertrophy, etc.

Persons of a sanguine and plethoric habit, especially the young, owing to the state of the balance of the system peculiar to that age. When it occurs later in life, it may be considered as a mark of venous plethora of the vessels of the head; it may also be observed in certain febrile diseases, and frequently aids greatly in forming an intelligent diagnosis. Males, as a rule, are more liable to epistaxis than females, doubtless owing to their habits and greater exposure to the vicissitudes of weather, but many females have a vicarious periodical nose-bleed, caused by the suppression of the menstrual discharge, which has been welcomed as a salutary effort of nature to relieve or bring a hyperæmic condition of the brain, lungs, liver, etc., to a favorable issue.

Great heat, violent exertion, either mental or physical, as coughing, sneezing, singing or reading aloud for any length of time, external violence, suppressed discharges, particular postures of the body, and various conditions of the atmosphere, have a powerful effect on the expansive quality of the blood. It frequently happens that passing from a cold to a heated room will produce it, and this feature is also exemplified in the coal or iron miner making a rapid transition from a rare to a denser atmosphere.

It is a well-known fact, that in the ascent of high mountains, a flow of blood from the nose, ears and lungs, as well as other alarming symptoms, has been an early physical consequence. We have numerous examples of this in the reports of travellers who have ascended points at extreme elevation.

Mechanical hyperæmia, excitation of the olfactory nerves, has been known to have induced epistaxis, an example of which has been recorded by Bruyerin, in which it was induced by smelling an apple. Another instance is given in which the odor of a rose appeared to be the exciting cause. Vascular polypi as a cause of nose-bleed must not be overlooked.

Morgagni has handed down to us the record of an extraordinary phase of this disease, when alluding to epistaxis appearing in an epidemic form, he states that in the year 1200, there was a great mortality of men in the space of twenty-four hours in Tuscany and Romandiola by a flux of blood from the nose.

Epistaxis assumes various forms; sometimes it appears as an habitual nose-bleed; again in an hereditary form in some families, of which numerous instances have recently been given, and which is now very properly considered a form of hæmophilia. Many theories have been proposed to account for its appearance, but an hereditary disposition appears the best established cause. Dr. J. Wickham Legg, in his treatise on Hæmophilia in 1872, refers to a disease superficially described in the writings of Albucasis, an Arabic author, who lived at Cordova in the eleventh or twelfth century. Until the year 1784, when Fordyce rediscovered the disease, no special mention

of it was made in either the Greek, Latin, or Arabic writings.

From that time to the present 650 cases have been reported. In almost all the reported cases, a rheumatic diathesis appears to accompany them. Some authors attribute it to an hereditary predisposition, while others ascribe the disease to intermarriage of relatives; among the most prominent authors who advocate the hereditary theory are Schonlein, Nasse, Wachsmuth, and Grandilier. Babington, in the London *Lancet*, thus described a remarkable case of this latter kind: A woman who had suffered from habitual nose-bleed, had six female children, three of whom also suffered from epistaxis, one of these also had six children, of whom the two female ones were affected in the same way. The older of these last two had a son living who was similarly troubled. The sister of the woman first mentioned likewise has a daughter living who is subject to violent nose-bleed. Here the presence of severe epistaxis is demonstrated down to the fifth generation, Babington himself having witnessed it in the mother, daughter and grandchild. In the latter, the attacks were so severe that the tampon had to be used every time. In the passive or atonic epistaxis an anæmic condition appears; the blood-vessels lose their elasticity, and are incapable of propelling their contents; their walls become relaxed; and red blood insinuates itself through the exhalants. In the extreme states of vital depression which occasionally follow the active stages of fever, especially those of a putrescent tendency, as malignant small-pox, typhus and scarlet fever, purpura hæmorrhagica and scurvy, this form of epistaxis is a very grave symptom. As to the pathology of this disease, modern research has failed to discover characteristic anatomical conditions to account for it. Blagden calls attention to the thinness and transparency of the arteries. Some writers have observed a congenital malformation of the heart; others a fatty degeneration of that organ. A great many plausible theories have been advanced to account for this peculiarly interesting form of hæmorrhage, none of which thus far are entirely satisfactory. We might suppose that the blood itself would be found to be changed in quality; that its fibrin would be found wanting, but all observers agree that the blood clots firmly and quickly, and upon careful analysis, fail to discover any unnatural condition of this fluid.

Instances are recorded of the loss of almost incredible quantities of blood. Bartholin mentions a case of forty-eight pounds, Rhodius another of eighteen pounds lost within thirty-six hours. Good, in his study of medicine, reports a case where the patient lost seventy-five pounds in ten days, the same author reports another case, in which the quantity is not given, owing to the difficulty in taking an account of it, but which continued without cessation for six weeks.

The principal hæmorrhages with which nose-bleed may be confounded, are those of the naso-pharynx, œsophagus, stomach, larynx, bronchi, lungs, and tympanic cavity via the Eustachian tubes, but a careful observer will find very little difficulty in deciding whence the blood comes. It is usually confined to one nostril, but its occurrence from both nostrils is by no means uncommon.

The best plan of treatment to be pursued will next occupy our attention. Reliance must not be placed entirely on local or general treatment; the latter should be a combination of medical and hygienic; it may be divided into therapeutic (including local and general), and operative. Unfortunately few cases of nose-bleed are brought to our attention in time for early interference, and serious mischief is often effected before the time of observation. On account of the inaccessibility of the bleeding points, until a comparatively recent period, its treatment has been very superficial and often-times difficult, but with the rhinoscope a new avenue has been opened, and wonderful indeed have been the results of this instrument, as a means of localizing this disease, which previously had often-times been full of obscurity, and as often mere guess work. The advantages of the rhinoscope, however, would have been very limited had it not been for the ingenuity of other eminent rhinoscopists, who have devised such useful instruments for making therapeutical and electrical applications to this region.

With the rhinoscope alone, we would have learned only of the existence of a lesion of structure, without the means of curing it. This is really progress, progress based upon truthful and reliable investigations.

I am aware that as to novelty of views, or etiology of this disease, your attention cannot be claimed, but only from the intrinsic importance of the subject, do I wish to interest you. We must all admit, that our efforts to check this form of hæmorrhage with the usual astringents locally and generally, have been far from satisfactory. I do not wish to be understood that the astringents should all be expunged from the list of therapeutics in this disease, as there are some very valuable ones, that it would be impossible to get along without. Of these I would mention ergot in its various forms, to be used locally, generally, and hypodermically. It has a peculiar and decided power in contracting the involuntary muscular fibre; causes divided arteries to contract, acts upon the smaller arteries and capillaries, and has been proven a valuable arrester of hæmorrhages in many affections. In passive epistaxis I have successfully used bougies composed of ergotin three grains, ext. belladonna one-third of a grain and cocoa butter q. s. Solution of subsulphate of iron, used both locally and generally, I have found very effective as an hæmostatic in a great many cases of this kind of hæmorrhage. In my hands the salicylate of zinc, nitrate of silver, glycerole of tannic acid, chromic acid, and tannate of iron have proven to be very active local astringents. Hot water at a temperature ranging from 100° to 110° as a remedy, has long been extensively used by the profession, but not until recently have its hæmostatic qualities been known. As a means of compression, the great success with which the sponge and seatangle tents have been used in uterine diseases suggested to my mind that they could be well utilized in epistaxis. I therefore some two years ago, commenced their use, and have no hesitation in saying they have

answered my most sanguine expectations. My plan of using them is the following: When a case of nose-bleed is presented, I first dip the tent into glycerole of tannic acid; introduce it into the bleeding nostril, and let it remain for twenty-four hours at least. In vinegar, as a local astringent, we perhaps have more of the styptic qualities, especially for the relief of active epistaxis, than are to be found in any of the other astringents.

Packing the nostrils with hæmostatic cotton, by means of Bellocq's canula is often deemed necessary. When the source of the hæmorrhage can be discovered, the galvano-cautery is certainly a great addition to our armamentarium. In order, therefore, to illustrate the plan of treatment which I have found most successful in the treatment of epistaxis, I will briefly enumerate several cases culled from my note-book.

Case 1. On June 30, 1881, I was summoned to visit Miss M. J. for the relief of nose-bleed, when I learned the history of her case from her mother. She stated her daughter was nearly 15 years old; that about a year ago she had suffered from severe attacks of headache, fullness of head and flushed face; previous to that time sickness was a thing unknown to her. This condition continued for some months, until in walking abroad in a very warm day her nose commenced bleeding profusely, and continued to do so every day for some ten days. Becoming weak, the family became alarmed, and called in the family physician for advice. He directed to have her kept quiet, and prescribed the usual remedies, and very judiciously stated to the mother that it was a vicarious hæmorrhage; that as soon as her menstrual flow was established the hæmorrhage of the nose would cease, and gave her some directions to encourage the appearance of the menses. Notwithstanding, the epistaxis continued very profusely every day, generally in the evening, and her condition became alarming. It was at this time her case was brought to my attention. Upon my arrival I found my patient to be an extremely nervous creature, presenting an exceedingly exsanguine appearance, with blood of a pale red coming drop by drop from the left nostril; her pulse was feeble, and extremities cool. I concluded there was no time to be lost; brandy and ergot were liberally administered, and a douche was improvised for the occasion, and vinegar passed through it into the bleeding nostril, the exit being from the right nostril. By the time four ounces of this fluid had been used, the hæmorrhage ceased. It being late in the evening, it was deemed most prudent to pack the bleeding nostril; I used cotton saturated with vinegar, by means of Bellocq's canula. From the heroic manner in which the doses of brandy and ergot were administered, her stomach became rebellious; I therefore, as a substitute, gave her hypodermically 12 drops Squibb's fld. ext. ergot every three hours. At the end of twenty-four hours the packing was removed, and, to my agreeable surprise, there was no return of the hæmorrhage. The hypodermic injections of ergot were continued for forty-eight hours; then ergotin 2 grs., strychnia $^1/_{40}$ gr. and iron were prescribed, and their use continued for one month, when her menses made their appearance, and her nose-bleed gave her no further trouble.

Case 2. W. R. This patient was a gentleman, aged 40, of a wiry constitution and nervous temperament; by occupation a railroad contractor, and necessarily exposed to all kinds of weather. He had suffered from severe attacks of rheumatism. He presented himself at my office September 7, 1882, with the following history: He stated that he had been on duty constantly, superintending the construction of a railroad in Western Pennsylvania during the intensely hot weather in July of that year; he experienced some very unpleasant symptoms, as ringing of the ears, vertigo, etc. Early in August bleeding from the left nostril commenced. At first he supposed it was an effort of nature to relieve the unpleasant head symptoms; but it being of daily occurrence, symptoms of exhaustion came on, so that he was almost unable to walk; and this daily recurrence of bleeding continued until he presented himself at my office. By careful examination of the affected nostril by reflected light, I discovered a small blood spot at the middle third of the inferior turbinated bone. I at once applied the galvano-cautery to the spot, by laying the electrode on cold, and then allowing it to become of a cherry red; but one application of the cautery was sufficient to arrest the bleeding. When examined the next day, a scab was found at the bleeding point. He was placed upon ergotin, quinine and iron. With no return of hæmorrhage, he made a rapid recovery to his usual good health.

Case 3. G. P., æt. 32, a coal miner by occupation, came under my observation Aug. 12, 1882. He informed me that nose-bleed is a disease peculiar to his family, as far back as the third generation some members of the family being afflicted with it. In his own case, it assumed no regular daily occurrence, but when it did occur, the hæmorrhage was so excessive as to produce alarming exhaustion. It was in this exhausted condition that I found him, with the blood flowing copiously from the left nostril. As it was impossible to clear the nostril sufficiently of blood to get a good view, and to discover the bleeding point by reflected light, I concluded to place a sponge tent, in the hope of checking this exhausting hæmorrhage by making equable pressure upon the weakened vessels. I therefore dipped a small-sized sponge tent into glycerole of tannic acid, and introduced it into the nostril to its full extent, retaining it by a string run through the loop which is attached to the tent, and passing it around the head, and gave him twenty drops fld. ext. ergot every four hours. The effect was most satisfactory, the tent was allowed to remain 48 hours; when removed it had swollen to almost twice its original size. The ergot was continued for one week, then he was put upon quinine, strychnia and iron for six months, with no return of the trouble. It is to be presumed that no return of the hæmorrhage has occurred, as I have not heard from him since. My object in this paper is accomplished, if I have adduced anything, that will aid in relieving this often-times trying and persistent hæmorrhage.

THE RECOGNITION OF GLAUCOMA BY THE GENERAL PRACTITIONER.

EDWARD JACKSON, M.D., OF PHILADELPHIA.

In his address, upon assuming the Presidency of the Opthalmological Society of the United Kingdom of Great Britain and Ireland, in October of last year, Jonathan Hutchinson said: "There is no one present who has not been pained over and over again by having to treat cases of glaucoma which were brought to him too late. In spite of all that has been done by specialists, and in spite of the fame which iridectomy cures have obtained, it is still the fact that a large proportion of the cases of acute glaucoma are unrecognized during the first fortnight by those under whose observation the patients come."

Dr. Chisolm, chairman of the Section on Ophthalmology, in his address before the American Medical Association, May, 1884, says: "Very seldom does a specialist see a case of glaucoma diagnosed as such by the family physician."

Doubtless this truth is felt by everyone specially engaged in ophthalmic practice; and to all who understand the importance of this malady, its constant tendency to an unfavorable termination, and the efficiency of certain well-known measures for checking its disastrous course, such common inability to recognize it must seem a very serious matter.

True, glaucoma is not one of the most common affections, yet it is common enough to cause a good deal of blindness and a very considerable aggregate of suffering. The cases mentioned below all came to me within nine months of a comparatively small practice, and in the community from which they were drawn there are probably fifty cases of glaucoma to one of stone in the bladder, an affection about which most practitioners would be more loath to confess equal ignorance.

In view of these facts, since the mass of medical literature is but the restatement of previously published truth, few matters would seem more worthy of space and attention than the well-known symptoms, which should always cause the physician to recognize, or, at least suspect the presence of glaucoma. To promote the desirable familiarity with these symptoms, the following notes of cases, stripped of any account of ophthalmoscopic appearances, and other matters not suited to the present purpose, are offered.

CASE I. J. McC., aged 54 years, subject to dyspepsia and chronic rheumatism, is rather anæmic and poorly nourished. Sixteen months ago she found she could not see perfectly with her left eye. From that time it grew worse, not steadily but by frequent slight increments of the dimness, with congestion of the eye and pain in and around it. During the periods between these attacks there was little or no pain, while vision remained unchanged or improved slightly. At first the dimness only affected objects that lay away from the centre of the field of vision in certain directions. Then the dimness, and later the blindness, spread until they involved everything before her. Four months later, the right eye began to go in the same way, and has continued to fail, though rather more slowly than the left. Now (when I first saw her, April, 1883) she can with the left perceive light at a little below the centre of the field of vision; in all other directions the blindness is complete. In the right vision V.=$^4/_{24}$, and there is very marked contraction of the field of vision. The pupils are large for a person of her age, and the iris very close to the cornea, making a shallow anterior chamber. Emerging back of the ciliary region, and passing backward over the sclerotic, are several unusually large and tortuous veins. The cornea, aqueous and lens are perfectly clear. On comparison, I found her eyes somewhat more resisting to pressure than her husband's, which were apparently normal. The note made was + T_1, for each eye. From the above history and symptoms I inferred that Mrs. McC. was suffering from glaucoma, and the ophthalmoscopic examination quickly confirmed the diagnosis. She allowed me to make an iridectomy in the right eye, and five months later her vision, with correcting glasses, was $^4/_6$. It remained unchanged September, 1884, or perhaps very slightly better.

The left eye, untreated, has changed but little, except that all power of perceiving light has been lost.

This patient's trouble was of sixteen months' standing, and during pretty much all that time she had been "doctoring for her eyes." There had been constitutional treatment and local treatment; the latter including extensive blistering of the temple and side of the face, and the use of belladonna, the mydriatic action of which is in this disease liable to be attended with the most disastrous results. The neighboring physicians had been furnishing her with advice as to a malady which they did not understand. They had been engaged in what Dr. Williams appropriately styles "shot-gun" practice.

CASE II. Mr. McL., aged 75 years, was in fair general health, when, in the summer of 1882, the left eye became very painful and its vision impaired. It was "better and worse by spells," but on the whole, grew worse, so that in nine months it became completely blind. During the summer of 1883 the right eye became affected. At first vision was impaired, later pain came on which was at times terribly severe, preventing rest and "making him 'go out of his head' almost." "It felt as though the eye were being pulled out of its socket." When I saw him, January, 1884, the left eye had for many months been "dead;" that is, he "could wipe things off the eyeball without feeling it." I found also that the sensibility of the right cornea was much blunted. The left eye was absolutely blind, and in the right there was bare perception of a bright light within six or eight degrees of the centre of the field of vision. Both corneas were hazy, but there was no marked opacity of either lens. The touch showed that the left eye was very much harder than normal, while the right resisted the pressure put upon it by the finger tips just as though it had been a ball of wood or stone; or, as expressed by the customary formula, the condition was R.+T_1, L.+T_2.

Dr. C., with whom I saw this case, had not made

a diagnosis. The physicians under whose care he had previously been had told Mr. McL. that he was suffering from cataract; and having waited some weeks in blindness, he was anxious for an operation. Of course he had to be told that no operation could restore his sight, that his blindness was beyond all help; and the only comfort that could be offered was that having gone through months of suffering that might at any time have been relieved, that all sight being gone by a progressive loss that might at any time have been checked, the eyes might henceforth remain painless and be no more a source of active trouble. To thus destroy the one hope of an old man is no pleasant duty, nor is there pleasure in reflecting on how different it would have been if the case had been seen earlier. It is the simplest of the applications of the ophthalmoscope which determines whether cataract be present or not; but even without it, such a mistaken diagnosis should in this case not have been made; for the uncomplicated advance of cataract is as painless as the whitening of the hair.

Case III. E. G. W., aged 67 years, somewhat anæmic and not very well nourished. August 22, 1883, after noticing for an hour or so that "things looked yellow and shiny," she was attacked with very severe pain in and about the left eye. Under warm opiate fomentations the pain left her in four or five hours, and the next day her vision seemed about as before. In October she had two similar attacks. November 21 she had a fourth attack, after which the pain grew less, but was not entirely relieved until on the 23d the fifth and worst attack began. There was now great impairment of vision, which, with the pain, continued with varying intensity but without intermission. The pain was intense, preventing sleep, and being but partially relieved by opiates, and there was associated with it anorexia, nausea and vomiting. On December 5, the twelfth night of the attack, I saw her with Dr. M. The anterior chamber was extremely shallow, if not entirely obliterated; the pupil dilated and immobile (no mydriatic had been used); the cornea was slightly hazy, the lens more markedly hazy (the lens of the other eye was equally so). There was dread of light, excessive lachrymation, and great pericorneal and conjunctival hyperæmia. She could barely count fingers at eighteen inches; but the field of vision, roughly taken by moving a small lamp-flame from place to place, seemed normal.

The pain was referred to the left eye, brow, temple and cheek, and the left side of the nose. When least severe it seemed mainly confined to the eye, when most severe it spread over the larger area. The tension of the eyeball was noted as $+T_2$. Eserine was used in this eye with slight benefit, but as soon as the patient assented, December 9, I made an iridectomy which gave complete relief. Five days later the right eye was attacked even more severely than the left had been, the pain being terrible, and vision in a few hours reduced to counting fingers at one foot; but again iridectomy gave complete relief.

In June, 1884, she was quite well, with vision in the right $= {}^{4}/_{18}$, left $= {}^{4}/_{12}$, in spite of a very noticeable nuclear opacity of each lens.

This case may seem plain enough when thus set down, but the history of earlier attacks, though clear and definite when obtained, was only elicited by inquiry. At first no complaint was made as to impairment of vision, and in the earlier stages the ocular hyperæmia and hyperæsthesia were not so marked as they became later. Dr. M. had been called to a patient suffering from headache, nausea and vomiting, and as Hutchinson says: "Practitioners of the most scrupulous care, of wide general information and the most conscientious regard for their patients' good, are yet very commonly misled by the acute congestion and severe constitutional symptoms which often attend the early stages of this disease." They must be so misled unless the possibility of these symptoms arising from this cause be constantly borne in mind, so that when the symptoms are discovered the idea of glaucoma as their possible explanation will occur as promptly as the idea of indigestion or of migraine.

Case IV. Mary M., aged 55 years. Her right eye received a blow from a stick in November, 1881, and after that she had repeated attacks of "cold" in the eye; that is, attacks of pain, photophobia and conjunctival hyperæmia. With each attack the pain was severe and the sight got dimmer. Various "eye-waters" were used, without benefit, and the only relief afforded by three physicians consulted during the eighteen months was by the administration of anodynes, which lessened the pain but did not cure it. This pain was described by herself and by those about her, as terrible, and when I first saw her, in May, 1883, she was anæmic, even cachectic, and her facial expression indicative of great suffering. At that time the right eye had but the faintest perception of light at the centre of the field of vision. The lens was opaque, the pupil widely dilated and the iris degenerated. Pain was constantly present, referred to the whole area supplied by the ophthalmic division of the right trigeminus nerve, and during exacerbations still severe. Tension $+T_3$. The other eye was normal. I advised enucleation. She refused at first to submit to it, but, after seeking other counsel, she consented, and obtained relief.

In this case it seems that glaucoma was a result of the injury; perhaps by damage causing opacity with swelling of the lens. At any rate the case may illustrate the fact that glaucoma is one way, and not an uncommon way, in which eyes are lost after injury. Occurring so it involves only the injured eye, and may come on at any age, while, on the other hand, primary glaucoma, as the foregoing cases illustrate, is wont to affect the two eyes successively, and is very rare before middle life.

If, then, a patient have an eye injured either by accident or previous disease, or have reached or passed middle life, glaucoma should be thought of when one or more of the following symptoms are discovered:

Failure of sight, which, except early in an acute attack, will be greatest in some peripheral portion of the field of vision and may for a time be entirely confined to such portion. This may from time to time seem checked or even give way to temporary

improvement, but in the long run it is progressive to complete blindness.

Pain not proportioned to the failure of sight, but rather to the suddenness of the attack, varying in intensity from none, or that which occasions no complaint, to that which persons of great fortitude cannot endure in silence. It is usually centered in the eye, but when severe, may also be referred to neighboring parts, and its origin may be masked by the accompanying prostration, vertigo, nausea, or vomiting.

Anæsthesia of the cornea, not often mentioned by the patient, but to be discovered by touching it with a bit of thread.

A dilated pupil with the iris pressed forward close to the cornea; and it is to be remembered, that in the aged, a pupil the diameter of which is one-fourth that of the cornea may be markedly dilated, while in a young person one that is over half the diameter of the cornea may be normal. The dilated pupil reacts sluggishly or not at all to changes of light.

Symptoms of inflammation, as photophobia, excessive lachrymation, conjunctival hyperæmia, or conjunctival discharge and haziness of the cornea. The last is due to great and sudden rise of tension, yet it might be taken as conclusive evidence of keratitis. Indeed this whole group of symptoms may, if properly understood, suggest the diagnosis by the attention they attract to the eye; but, on the other hand, they may prevent a correct diagnosis by suggesting to the uninformed medical attendant that a simple, visible inflammation is the whole trouble, thus stopping further search for the *fons et origo mali*.

Increased tension is the essence of glaucoma, and the physical evidence of it obtained by the finger tips is pathognomonic. But the accomplished ophthalmic surgeon does not always feel sure that his finger tips will positively inform him as to the slightest change that may in time prove serious; and though the increase may one day be marked, on another it may be quite absent. So that while the finding of increased tension establishes the diagnosis, the failure to find it does not negative the idea of glaucoma.

REPORT OF A PECULIAR CASE OF MALFORMATION OF THE JAWS, AND THE TREATMENT.

BY W. W. ALLPORT, M.D., CHICAGO, ILL.

Read to the Section of Dental and Oral Surgery of the American Med. Association, May, 1884.

MR. CHAIRMAN AND GENTLEMEN.--The plaster casts I exhibit to you are models of a case that I have recently had under treatment. It had excited considerable interest and discussion among some of the surgeons and dentists of the patient's native State, but no definite treatment had been decided upon.

On taking up his residence in Chicago, the dentists at his home in New Hampshire advised that he put himself into my hands for such treatment as might be thought best, and the case is, I think, of sufficient interest to warrant me in presenting it to the Section.

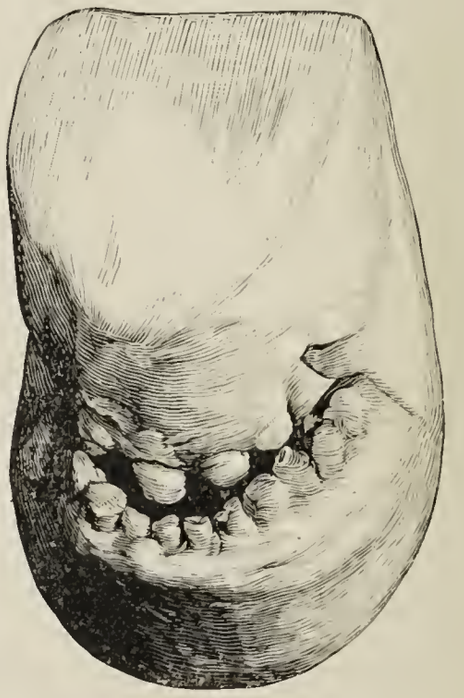
Mr. F. L. S——, aged 25 years, consulted me June 22, 1884, for a malformed condition of both maxillary arches. The young gentleman is a graduate of Harvard College, and a civil engineer by profession.

The malformation was such as to make it impossible to properly masticate his food, and his personal appearance, especially when eating, was very unsightly and a source of great mortification.

The trouble was largely due to a lack of development of the upper jaw, consequent upon a failure in the formation and development of the temporary and permanent teeth. Just how many temporary teeth were erupted I am unable to say, but from the best information gained, it is evident he did not have the full complement.

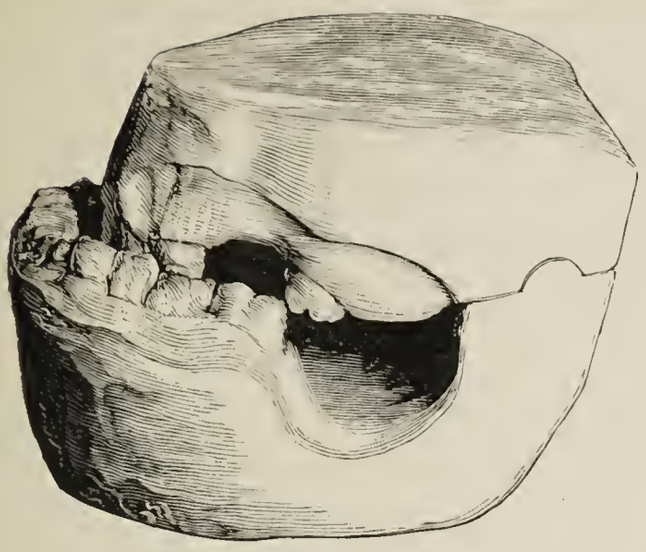
When the examination was made there were only seven teeth in the superior jaw, two temporary cuspids, two permanent central incisors, and three molars, the first and second upon the right side, and the second upon the left, all being somewhat imperfect in form, and these are the only permanent teeth that have made their appearance in this jaw. In the lower jaw the six anterior temporary teeth were still in position, though much worn away on the cutting edges (see cut No. 2), and the second temporary molar on the left side, and both temporary molars on the right side, each considerably decayed. The permanent teeth were the first bicuspid on the left side, and the first molar on either side.

The angle of the lower jaw was less acute than normal, causing the jaw to protrude to a slight extent, but would have caused no marked deformity had the superior jaw been properly developed.



CUT NO. 1.

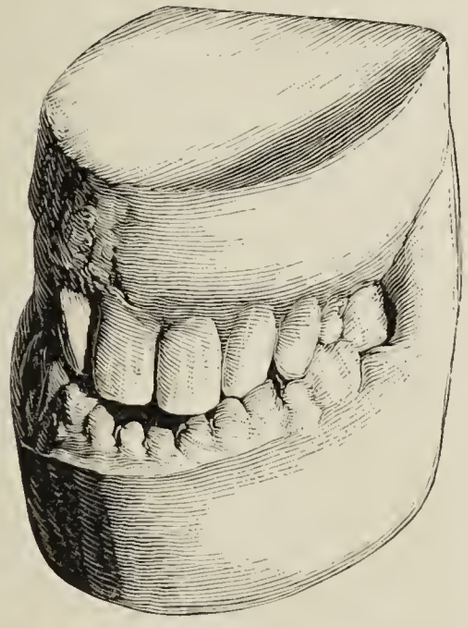
Cut No. 1 represents a front view of the case (taken from plaster casts) with the jaws closed to the full extent.



Cut No. 2.

Cut No. 2 represents a side view of the same models, which shows the extent of the recession of the upper jaw, and the protrusion of the lower; also that the occlusion was such that when the jaws were closed "the bite" was so short as to produce a most unsightly appearance of the face.

To lengthen the bite permanently, gold crowns were fitted over the only superior molar of the left side, and the anterior of the two molars on the right side, and so shaped as to cover in their occlusion about one-third of the grinding surface of the permanent molars in the lower jaw. By this process the bite was lengthened three-fourths of an inch, as evidenced by cuts No. 3 and No. 4, which placed the



Cut No. 3.

jaws in a normal position. After the jaws were thus thrown apart, the four front teeth were extracted, a gold plate was fitted to the mouth, and secured by heavy clasps around the gold crowns, and then mounted with artificial teeth secured to the plate by rubber attachments as represented in cut No. 3. Cut No. 4 is taken from a photograph of the gentleman after the operation was completed.



Cut No. 4.

It is a matter of regret that a photograph was not taken with the mouth closed before the jaws were permanently thrown apart by the gold crowns, that the great change in the expression might be seen and contrasted with cut No. 4. But this can readily be imagined.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

A New Mode of Obtaining Rapidly the Constitutional Effects of Mercury.—M. Petithan (*Archives Médicales Belges*), has an article entitled, "Iodure Intus, Mercure Extra," in which he gives the benefits resulting from doses of iodide of potassium given by the mouth and followed in a few minutes with hypodermic injections of the salts of mercury—as producing in a short but variable time, a quite abundant salivation, a metallic or acid taste, sometimes nausea, and a lowering of the pulse and temperature followed by a reaction. He was led to this use of the drugs by noting a curious case of mercurial intoxication resulting from the internal use of an iodide simultaneously with the external use of a mercurial ointment.

He uses for his hypodermic injections a solution of corrosive sublimate, and also the peptonate. The results have been the same in both cases, but a little deferred in the case of the peptonate, in which it was also more painful. In six cases of syphilis the relief

seemed to be hastened—the infinitely small quantity used, and the rapidity of the reaction were both marked features in this new mode of application.

OBSTETRICS AND GYNÆCOLOGY.

Spondylolisthesis.—A recent number of the *Archiv. für Gynäkologie* contains a valuable and interesting paper by Dr. A. Swedelin, of St. Petersburg, on a case of labor with spondylolisthesis. He begins (*Medical Times*) by expressing the opinion that this deformity is not so rare as was at one time supposed. In his case the patient was healthy until the age of 17, when she fell backwards in such a manner that the edge of a table caught her in the lower part of the back. Soon after the fall she suffered from pain in that region which, in spite of treatment, continued severely for half a year; and in the course of this time a backward inclination of the trunk was acquired, the patient feeling as if without this inclination she would fall forwards. About a year after the fall she noticed greater prominence of the iliac crests, and protuberance of the lower belly. She was married at 25, and soon became pregnant. At about four months' pregnancy she consulted her medical man who found retroversion of the gravid uterus. He twice reduced the displacement, but it each time returned, and at four and a half months' pregnancy she miscarried. In her second pregnancy retroversion again occurred at the beginning of the fourth month, and this time was successfully corrected by a Hodge's pessary. The presence of pelvic deformity having been ascertained, labor was induced at the thirty-sixth week, and terminated successfully, the child, a male, as big as one at full term, being born without assistance. The mother recovered well and was afterwards carefully examined and measured. There were no deformities elsewhere than in the pelvis. The patient stood upright with the knees slightly bent, complete extension of them being painful to her. The gait at first glance presented nothing peculiar, but when carefully watched was seen to be of the "rope dancer type," one foot being put down almost exactly in front of the other, and the heel of one foot occasionally striking the other as it passed it. The figure of the patient presented the peculiarities pointed out by Neugebauer as characteristic of spondylolisthesis. "Shortness of stature, especially diminution in the trunk, and therefore apparently disproportionate length of leg; a deep lumbo-dorsal hollow in the spine, sinking of the thorax into the false pelvis; wider separation than normal of the hip bones as compared with the trochanters; the presence in the lateral contour of the trunk of an angle above the iliac crests; width of the hips above owing to greater separation of the innominate bones; but smallness of the buttocks, each being bounded by a deep lateral hollow; projection backwards of the upper part of the sacrum, and of the posterior superior iliac spines." The sinking downwards of the thorax leads to the formation of a very marked cutaneous fold, running parallel to the lower ribs, which Neugebauer calls the thoraco-pelvic fold. Dr. Swedelin's case was further complicated by slight scoliosis. The sacrum was also bent, so that its third spine was unusually prominent. This our author attributes to the pressure of the body-weight in sitting. Neugebauer's description of spondylolisthetic subjects, as seen in profile, also applied exactly to Dr. Swedelin's case: "characteristic saddle-shape of the loins, shortening of the trunk, coincidence of increased lumbar lordosis with diminished pelvic inclination, flattened buttocks, pendulous belly, abnormal visibility from the side of the mons veneris, apparent uprightness of trunk." On palpation the muscles of the lumbar spine could be felt as thick rolls on each side, and between them the last dorsal and upper two lumbar vertebral spines could be felt indistinctly, and the third and fourth lumbar spines not at all; the fifth lumbar spine could be very plainly felt above the base of the sacrum.

The upper eleven dorsal spines were easily made out. The pelvis externally looked very large, the ilia well developed, the crests almost horizontal, the spines strongly projecting. The symphysis pubis was high, and the pubic arch narrow. The base of the sacrum was apparently displaced backwards. Above it the last lumbar spine was felt, and in a line with it two other long projections, one on each side, evidently the inferior articular processes of the last lumbar vertebra.

By abdominal examination the spine could be so easily palpated in the interval left by the separation of the recti that the inter-vertebral substance could be distinguished from the bodies of the vertebræ. It was made out with certainty that the outline of the projecting vertebral mass was not gradually lost in the structures attached to it at the sides, but was sharply defined, leaving an angular hollow on each side. Internal examination gave at first no indication of narrowing of the pelvis; and the finger pressed up as usual toward the sacral promontory, would fail to detect any. But when the finger was passed up in the axis of the pelvic inlet, then it encountered the displaced lumbar vertebra, sharply projecting, not merging into lateral masses at the side; below it an angular hollow, bounded by the surface of the last lumbra vertebra and the upper part of the sacrum. Both the true and the diagonal conjugate diameters were shortened, the diagonal measuring 10 centimetres, the true, or rather apparently true, conjugate 7½ centimetres, and the transverse diameter of the outlet was only 7.5 centimetres. There was, therefore, no doubt that the case was one of spondylolisthesis, produced in the way Neugebauer has described, viz.: by fracture of the inter-articular part of the vertebral ring." Dr. Swedelin gives complete measurements. He then considers the obstetric management of these cases; and has collected and examined from this point of view every case of labor with spondylolisthesis that he could find. The first point of interest in his own case, clinically, is the occurrence of retroversion in each pregnancy, which the author attributes to increased pelvic inclination, bringing the intra-abdominal pressure to bear on the anterior surface of the organ, aided by the deformity which prevented the

uterus from righting itself. The course of labor in these cases has been before studied, and on the basis of the recorded cases, by Schwing and by Perroulaz; but Swedelin has been able to collect a larger number of cases than either of these authors. He draws the following conclusions as to the course and management of labor in the spondylolisthetic pelvis. (1.) Slight degrees of narrowness of the pelvis by olisthesis, in which the conjugate pseudo-vera (that is, the measurement between the internal surface of the symphysis and the anterior surface of the olisthetic vertebra) exceeds 9 centimetres (3½ inches), do not as a rule cause any hindrance to the parturient process; (2.) Moderate contractions, conjugata pseudo-vera of 7½–9 centimetres (3–3½ inches), permit labor at term without very great difficulty; (3.) Higher degrees, 6.5–7.5 centimetres (2½–3 inches), cause labor to be attended with great danger to the child, but the prognosis for the mother is favorable; (4.) Extreme contraction of conjugata pseudo-vera when it is under 6.5 centimetres (2½ inches), will not allow the head to pass without diminution in its size; (5.) In multiparæ the prognosis of an approaching labor is worse in proportion to the difficulty of the preceding one. From these propositions Dr. Swedelin deduces the following therapeutical rules: (1.) With a conjugate pseudo-vera under 7 centimetres premature labor should be induced in the 32nd week; (2.) With a pseudo-conjugate of between 7 and 8 centimetres it should be induced in the 36th week; (3.) When the dimension mentioned is between 8 and 9 centimetres, pregnancy may be allowed to go to term, but if the patient be feeble, or unfavorably circumstanced, it is better to induce labor in the 36th week; (4.) With a conjugate pseudo-vera over 9 centimetres there is no reason for inducing labor; (5.) If the patient has been allowed to go her full time, and the pseudo-conjugate is between 6 and 7 centimetres, then the case must be treated according to its individual features, either by craniotomy and cranioclasm, or by Cæsarean section; (6.) With a conjugata pseudo-vera below 6 centimetres, Cæsarean section is indicated. Appended to the paper is a valuable bibliographical list of the literature of the subject.

A New Means of Diagnosis of Pregnancy in its Earlier Months.—Prof Hegar, of Fribourg, (*Prager Med. Wochenschrift, Annales de Gynécologie*) recognizes a peculiar softening, suppleness and thinning of the inferior segment of the uterus, that is to say, the portion immediately superior to the insertion of the sacro-uterine ligaments, as a constant and positive sign of pregnancy. It can be easily recognized not only when the uterus is resisting, as ordinarily, but when it is elastic and soft. Even then it is possible, by depressing the inferior portion of the uterus, to distinguish the superior portions and the rigid neck. The softness of the part is such as to cause the question whether the neck be not simply in contact with a pelvic or abdominal tumor. He knows of no pathological condition of the uterus which could give this symptom, hydrometritis and hæmatometritis become in this way easy of diagnosis. The cause of this remarkable sign is from the fact that the inferior segment of the uterus becomes the thinnest, softest, and most elastic portion. It results, consequently, that in practicing the rectal touch with abdominal palpation, it is possible to feel this portion between the fingers with the characteristics which it presents. It is evident, however, that the absence of this sign is by no means an evidence of the absence of pregnancy, which may exist without producing these modifications in so marked a degree.

MEDICINE.

Regulatory Albuminuria.—Rosenbach (*Zeitschr. f. Klin. Med.*, Edinburgh *Clin. Jour.*) defines regulatory albuminuria as an albuminuria in which the quantity and quality of the urine are normal (except in containing albumen), and there are present no products of inflammation, such as tube-casts or blood-corpuscles. In such cases the kidneys are for the time functionating more than they normally do, and the albuminuria arises from anomalies of the blood or of tissue-change, and not from any disease of the kidneys themselves. It is to be remembered that in these cases the blood may be either absolutely or relatively richer in albumen than is normally the case. In the first of these cases the blood holds absolutely more albumen in solution than normal, and this may be due to a great absorption of albuminates from the food, to the transfusion of blood, or to peptonuria and the absorption of large pus collections. In the second case, the blood contains relatively more albumen than normal—relatively, that is, to its power of combining albumen—and this arises from increased loss of water through the skin or intestine, from diminished supply of water to the system, or from diminished functionating power in the white blood-corpuscles. In both these cases the excretory organs strive to reduce the albuminous concentration of the blood to the normal level, and hence the regulatory albuminuria.

Rosenbach holds that the only characteristics of nephritis in its strictest sense are white (and the so-called "fatty") blood-corpuscles, and the tube-casts which are formed out of these corpuscles. He holds the hyaline corpuscles only as an indication of the presence of albumen, since, as is well known, they often occur when there can be no question of renal lesion. The red blood-corpuscles are only indications that the process possesses considerable acuteness.

A New Form of Peptonuria.—Maixner (*Zeitschr. f. Klin. Med.*, Edin. *Clin. Jour.*) as far back as 1879 pointed out that in most cases of peptonuria the presence of peptone in the urine was dependent upon the simultaneous presence of large collections of pus in the body. It was afterwards shown by Hofmeister that the peptone which is present in pus is united to the formed elements (pus corpuscles), and only appears in the urine when these break up. Von Jaksch still more recently pointed out that a second form of peptonuria existed, which was occasioned by the breaking up of the lymphatic elements of the blood.

This theory rested upon the investigation of some cases of scorbutus, in which, coincidently with the appearance of peptone in the urine, it was observed that the white blood corpuscles were undergoing disintegration, while there was no other cause for the presence of peptonuria. This second form of peptonuria was described as "hæmatogenic," in contradistinction to the first or "pyogenic" form.

Still more recent investigations have led Maixner in this article to conclude that there exists a third form of peptonuria, which completely differs in its mode of origin from the hæmatogenic, as well as from the pyogenic form, and which is not dependent upon the breaking up of leucocytes, whether in pus or in the blood-stream, but which is brought about solely by an abnormal passage of peptone from the digestive tract into the blood-stream.

In the course of former observations Maixner found a case of gastric carcinoma and one of typhoid fever in which peptones were found in the urine. Neither during the life of these patients nor on post-mortem examination was Maixner able to find any cause for this condition which harmonized with the theory as then held. Since that time he has much extended his observations in such cases, and he embodies the results in the present paper. The method he employed for the detection of peptone in the urine was that of Hofmeister. The clinical material consisted of twelve cases of carcinoma of the stomach and several of typhoid fever, in all of which there existed distinct peptonuria.

In considering the cause of peptonuria in these cases, Maixner commences by stating the three following possibilities:

(1.) It was possible, though unlikely, that the carcinoma of itself formed peptone, which being absorbed by the blood, came to elimination through the kidneys.

(2.) The disintegration of the tumor might have set free peptone, which would then appear in the urine.

(3.) The peptone which was formed in the stomach might, owing to the disease of the mucous membrane, pass unchanged into the blood, and from hence find its way into the urine.

The first of these suppositions was untenable, for peptone has not hitherto been found in such tumors; nor does the peptonuria increase along with the growth of the tumor mass. Nor is it at all probable that the peptone was derived from the breaking up of the tumor, and Maixner adduces weighty reasons against that view.

There remains, therefore, only the third possibility, viz.: that the peptonuria results from the absorption of peptone from the stomach. All physiological facts point to this, that when the gastric mucous membrane is destroyed or is diseased, it is robbed of its assimilating function, and so when a portion is affected by the tumor growth a part of the peptone escapes the assimilating process, and passing unchanged through the diseased mucous membrane, it appears in the urine. In a similar manner is to be explained the occurrence of peptonuria in cases of enteric fever.

Maixner applies to this third form of peptonuria the name "enterogenic," and he believes that it will be found to occur in diseased conditions of the intestinal mucous membrane other than those in which he has detected its presence, such as gastric ulcer, dysentery, etc.

SURGERY.

SURGICAL USES OF COLLODION.—Mr. Sampson Gamgee writes (Birmingham *Med. Review*, Glasgow *Med. Jour.*): Collodion is one of those therapeutic agents of which the value to the surgeon is admitted, without being adequately appreciated or utilized. Composed of ether, gun-cotton and spirit, collodion is a powerful anti-putrescent; and by ready evaporation and contraction it exercises the dual antiphlogistic power of refrigeration and compression. In acute orchitis I know no plan so simple, rapid, and satisfactory as coating the cord and scrotum with layers of collodion by the aid of a camel's hair brush previously dipped into it. The sensation is momentarily sharp, the shrinkage rapid, and so is the subsidence of the inflammatory process—facts pointed out some 30 years ago by Bonnafont, but much doubted and almost forgotten. To swollen parts which cannot well be bandaged, collodion is especially applicable for the compression attending its contraction. I was lately consulted in the case of a good-looking boy considerably disfigured by a red and swollen nose, which became very pale and visibly contracted just after I painted it with successive layers of collodion. I repeated the application three times in the succeeding fortnight, with the effect of producing shrinkage of the organ to its natural size and color. When the nasal bones are fractured, a very effective mould for keeping them immovable, after adjusting them with the fingers, may be thus made: Place over the nose a thin layer of absorbent cotton soaked in collodion; as it dries another layer of cotton and collodion, taking care that the application extends sufficiently on each side to give buttress-like support. The patient compares the feeling to the application of a firm bandage on the nose, and the bones consolidate effectively under the shield, which may be renewed as it cracks and peels off.

Other cuts than recent ones do well under collodion. A horse-breaker sought my advice for a grazed wound inflicted by a carriage step on the front of his right shin 10 days previously. He had applied water-dressing continuously. The surface of the sore had suppurated, and its edges for some distance round were red and tender. I raised the foot to empty the limb of blood, dried the surface of the sore with absorbent tissue, then brushed it over with collodion, and applied a smoothly compressing bandage over one of my pads. The part was easy at once, and with two more dressings at intervals of four days, cicatrization was perfect, the patient having continued his business of riding and driving without losing an hour.

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THE COMMUNICABILITY OF TUBERCULOSIS.—So long as this universal scourge of humanity has been the object of clinical study, it has been regarded as contagious; and this not merely by the people, but also by the profoundest minds of the medical profession.

Aristotle is reported to have so considered it, and Morgagni is said to have entertained such fear of its contagion, that he would not perform an autopsy on any one who died of the disease. For ages, the opinions of the profession were based upon clinical observation. At length, however, with advance in pathological knowledge, seekers after truth grew distrustful of mere clinical observation, and this method, with its liability to error, became subjected to the test of another.

Various of the lower animals were inoculated with tuberculous tissues; and though this procedure was likewise liable to error, it was thought to afford the best prospect of ultimately solving the problem. Klencke, whose researches have been largely forgotten, was the first to initiate this method, in 1843. The attention of the medical world was not seriously engaged, however, until M. Villemin published the results of his experiments some twenty years later. Then in rapid succession followed investigations by other pathologists, chief among whom were Cohnheim and Salmonsen. Reports were conflicting, and for years the question was an open one. Recent experiments, however, made by Robert Koch and his coworkers, and detailed by him in "The Reports of the Imperial Board of Health, Second Volume, Edited by Dr. Struck, Director; Berlin, Hirschwald. 1881, appear to have settled the dispute. An abstract of his paper may be found in *The Lancet* of March 15, 1884.

To quote from this abstract: * * * "He describes at length the infection experiments—first, those made by inoculation with tuberculous tissues; and, secondly, those made with pure cultures of the bacillus. These latter include inoculation of the anterior chamber of the eye, of the peritoneal cavity, intravenous injection, and experiments by inhalation. We know the results of this research, and how upon it the doctrine of *contagium vivum* in tuberculosis has been based." Now, if the disease may be contracted by inoculation, why may it not in human beings be contracted from intimate relationship with tuberculous patients? With a view to investigating this latter contingency, a commission was some time ago appointed by the "Société Medicale des Hopitaux" of Paris, and on the eleventh of last July, M. Vallin read before the society a report in behalf of the Commission, (see "*Gazette Hebdom.*," July 25, 1884, and the *American Journal of the Medical Sciences*, for October, 1884, an abstract of his report, under the title "Transmissibility and Prophylaxis of Tuberculosis.") The first part of his paper reviewed experiments and observations made with reference to determining these points, and incidentally mentioned that Cohnheim, who formerly denied the contagiousness of phthisis, is now arrayed on the affirmative side of the question, in consequence of having seen animals in his own laboratory which had never been inoculated, contract tuberculosis from too intimate proximity to diseased companions. In short, after having recounted the history of the subject up to the present, M. Vallin passed to a consideration of the prophylaxis of tuberculosis. His points are as follows:

A phthisical patient should occupy a bed, and, if possible, his apartment, alone. Two arguments may be employed to effect this end: the danger to the healthy person of contamination, and the importance to the invalid of fresh air, unfouled by the breath of another. Children in particular should not be allowed to share the bed or room of a consumptive. The danger is enhanced if they are recovering from measles, bronchitis, or any other pulmonary affection that is attended with abrasion of the epithelial lining of the air passages. Ulceration of the buccal, pharyngeal and laryngeal membranes, due to phthisis, appear to be specially prone to disseminate the disease—a fact so generally recognized by experimenters, that inoculations are now made directly into the peritoneal cavity. Verneuil's statements, that tuberculosis of the genital organs is particularly liable to propagation, though not yet proven, are probably cor-

rect. Hence, consumptives should be restricted in their sexual relations. For this and other reasons a tuberculous woman, or one predisposed to the disease, should be dissuaded from marrying, especially from nursing her offspring. In this respect the views of the Commission accord with those of the best obstetricians, who regard pregnancy and the *puerperium* as likely to favor the development and progress of destructive processes in the lungs. (See Playfair, Lusk, Spiegelberg, Schroeder, etc.). It is a mooted point whether or no the milk of a phthisical mother can infect her nursling; but this seems improbable unless the mammary gland be the seat of disease. However, M. Vallin suggests that great precaution be exercised in the consumption of milk and flesh of tuberculous animals, and that they be not admitted as articles of food before having been thoroughly cooked. The real prophylaxis of phthisis consists in the disinfection of the *sputa*. For this purpose are recommended solutions of chloride of zinc, ℥jss to the pint of water and glycerine, of chloride of lime, thymic, nitric and carbolic acids, or sulphate of copper. The fresh *sputa* are particularly resisting to the action of disinfectants, being unaffected by a solution of the bichloride of mercury of the strength of one part to two hundred. The experiments of Schill and Fischer, detailed in the *Medical News*, Sept. 19, 1880, prove that the *sputum* of tuberculosis retains its virulence from three to seven months. As dried *sputa* are particularly dangerous, as particles floating in the atmosphere, it is highly important that the apartments and clothing of consumptives be thoroughly disinfected. *Fomites* should be treated with steam at 212° F., and until so treated, scrupulously protected from the air within closed vessels. Rooms where phthisical patients have died or resided long, should be fumigated with burning flowers of sulphur, ℥viiss to the cubic yard of space. Barracks, hospital wards, health resorts, etc., should from time to time, at least once a year, be likewise disinfected. When a patient leaves his apartment by day, it should be thoroughly aired and heated. If ventilation be properly conducted, there need be no danger to the inmate, and by night this is very necessary in order to avoid confined air. Patients should not be allowed to expectorate into handkerchiefs and the like, or on to the floor, but into receptacles filled with wet sand or sawdust, or, still better, with disinfectant solutions. In conclusion, the report stated that while the communicability of phthisis from one person to another is not proven, it is so probable as to render strict prophylaxis an imperative duty.

The foregoing fair statement of the present status of the investigations concerning the communicability and prophylaxis of tuberculosis, naturally leads to the inquiry how it has happened that a strictly contagious disease, with abundant infectious sputa, has existed for centuries in every civilized nation on the globe, with perfect freedom of intercourse both in families and communities, without having long since infected and destroyed the whole human race?

And how is it that physicians examine minutely tuberculous patients and their sputa almost daily for years without the slightest harm? Or why is it that both physicians and nurses in daily attendance on hospital wards constantly occupied by tuberculous patients, show no greater ratio of attacks of the disease than those who never enter such wards?

American Public Health Association.—The twelfth annual meeting of this important national organization convened in Liederkranz Hall, St. Louis, on the morning of the 14th inst. The meeting was called to order at 10 o'clock A. M. by the President, Dr. Albert L. Gihon, Medical Director of the United States Navy.

Dr. Spiegelhalter, Chairman of the local Committee of Arrangements, welcomed the members and announced an extended list of invitations and entertainments. Eighty-one members were reported present, representing 21 States, the District of Columbia, Canada, the Medical Corps of the U. S. Army and Navy, and the Marine Hospital Service. A strictly business meeting was first held, during which reports were submitted by the Treasurer, by a committee on the incorporation of the Association, and by the Secretary on the election of new members.

A list of sixty-two new members recommended by the Secretary, and thirty-four by the Chairman of the local Committee of Arrangements were elected. The Chairman of the Committee on Necrology reported the names of thirteen members who had died since the last annual meeting.

The routine of business having been completed the Association proceeded to the reading and consideration of papers, and consumed the remainder of the session chiefly on matters pertaining to the sanitary condition of the household or family residences.

Tenement Houses: This subject was presented in an interesting paper by Dr. C. W. Chancellor, of Baltimore, who, after setting forth the evil effects of overcrowding in a large part of the tenements occupied by the poor in all our cities, claimed that houses which were unfit for habitation should be declared public nuisances and their owners compelled either to put them in proper condition or remove them. He

urged that overcrowding should be strictly prohibited under a heavy penalty, and houses used for crime at once closed and the re-establishment of similar houses elsewhere in the cities prevented by the due enforcement of proper regulations. To that purpose the municipal authority ought to have the hearty coöperation and consistent support of public opinion. When it was necessary to purchase unsanitary houses to effect public improvements the authorities should be compelled to pay only a price commensurate with the letting value of the property for legitimate purposes, and not the added value in consequence of the owners winking at the use of their property for illegal and immoral purposes or the consequence of their property being overcrowded and let to more persons than it was capable of properly accommodating. In conclusion, Dr. Chancellor urged that local authorities should be clothed with powers enabling them to successfully grapple with the evils of overcrowding and the evils arising from the occupation of unsanitary dwellings.

This was followed by a paper on "The Hygiene of the Habitations of the Poor," by Maj. Samuel A. Robinson, Inspector of Plumbing in the District of Columbia. It gave many practical suggestions concerning the construction of dwellings—claiming that no dwelling should be constructed on damp ground until it had been thoroughly drained, and emanations prevented by a layer of cement over the surface—that delf wares should be used in preference to cast-iron and other materials in the construction of drains, water-closets, sinks, etc., and that the simplest form of construction was the best. Like the author of the preceding paper, he claimed that the municipal authorities should exercise a most stringent supervision over all these matters. This was followed by a paper on "The Sanitary Survey of a House," by Dr. Wm. K. Newton, of Paterson, N. J., which related chiefly to the duties of sanitary inspection officers.

The subject of "Heating and Ventilation" was presented in a paper by Dr. Charles O. Curtman, of St. Louis, who, after comparing the various systems in operation at the present day, gave preference to the hot-air principle as the one best adapted for public buildings. A moderate degree of discussion was elicited on some of the topics presented in these several papers, but without developing additional facts of importance.

Dr. Thornton W. Parker, of U. S. Army, read a paper on "The Sanitary Management of Railway Cars and Stations," in which he set forth the necessity of requiring each railroad company to have special hospital cars for the accommodation of the sick and the protection of travellers from contagious diseases. Also, that in the depots of all the large cities there should be an organized system of sanitary inspection, etc.

The remaining paper of the first day's session was on "The Hygiene of Occupations," by Dr. Geo. H. Rohe, of Baltimore. In presenting statistics on the subject, he gave the following from a report prepared for the Massachusetts Legislature, covering 31 years eight months, from May 1, 1843, to December 31, 1874:

The total number of deaths during that period was 144,954, and the average age of each individual 50.9 years. The list was divided into 10 classes, and showed that of the total number of deaths 21,832 were cultivators of the soil, with an average age of 65.29 years; active mechanics abroad, 10,093, with an average age of 56.17; active mechanics in shops, 16,576, with an average age of 47.57; less active mechanics in shops, 17,233, with an average age of 43.87; laborers, 28,058, with an average life of 47.41; men employed on the ocean, 8,044, average age 46.44; merchants, financiers and agents, 15,965, with an average of 48.95 years; professional men, 5,175, with an average length of life of 50.81, and females, 3,343, with an average age of 39.17.

The evening session of the first day was occupied first with the hearing of addresses of welcome by the Mayor of St. Louis and the Governor of Missouri, after which the President of the Association, Dr. Albert L. Gihon, delivered the annual address, in which the "Sanitary Responsibilities of the Citizen" were discussed with his well-known ability and emphasis. These evening exercises were attended by a large audience of ladies and gentlemen.

Conference of State Boards of Health and Cholera.—Simultaneous with the assembling of the American Public Health Association in St. Louis, there was held in the same city a conference of members of the several State Boards of Health. The attention of the conference was chiefly occupied with the subject of the prevention of cholera, and the deliberations ended in the adoption of a report, the chief points in which were the positive declarations that "there are three essential factors to the presence of cholera in this country as an epidemic, viz.: Importation of the disease by means of ships directly or indirectly from its *only* place of origin in India; local unsanitary conditions favorable for the reception and development of the disease; and persons sick with the disease in some of its stages, or things

affected by such sick persons to carry it from place to place." With equal positiveness the report asserts that "*the cause* of cholera exists in the discharges of persons affected with the disease, or in things infected by such discharges."

With these positive views, the remedies recommended are, of course, thorough quarantine, State and national; systematic inspection both at home and foreign ports; thorough local sanitation; and if the disease comes, as complete isolation of patients as possible, and thorough disinfection or destruction of all infected articles.

We shall give our readers the report in full as soon as we have space for it, merely adding that some positions are more easily assumed than proved or reconciled with all the known facts.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated meeting, Oct. 2, 1884. The President, R. A. Cleemann, M.D., in the chair.

Dr. B. F. Baer exhibited specimens from a case of *Submucous and Interstitial Fibro-cystic Tumor of the Uterus in which Hæmorrhage was absent.* Mrs. H., aged 36 years, has had two children, the youngest being 12 years of age. Four years ago she suffered from severe metrorrhagia which was caused by a submucous and interstitial fibroma of the uterus. This was removed, and after passing through a severe attack of periuterine inflammation, she recovered. After the removal of the growth her catamenial periods became regular in time and quantity, and she remained well until about one year ago, when she began to have a very fetid watery discharge in the intermenstrual periods with sacral pain and uterine tenesmus. On July 17 her physician, Dr. R. Armstrong, of Lock Haven, requested me to see her with him, when examination showed the cervix to be twice its normal size with swollen and gaping lips, making the os and cervical canal quite patulous. The body of the uterus was as large as at the third month of gestation, but it was not symmetrically developed, being larger on the left than on the right side. The left broad ligament was indurated and seemed to be the seat of an old inflammatory process. Pain had been present in this region since the operation. The sound met with an obstruction at the internal os and was deflected to the right, passing to a depth of nearly four inches. It could be made to pass around a mass of some kind in the cavity of the uterus, giving an indistinct sensation of the presence of an abnormal growth. I expressed the opinion that although there had been no hæmorrhage there was a submucous or polypoid fibroma present, and advised its removal. Seven tents were introduced, and twenty-four hours later ether was administered, when with the assistance of Drs. Armstrong, Walls and Ball, I proceeded to remove the tents and explore the uterine cavity. On passing my finger within the internal os, I detected a smooth oval-shaped mass of tissue resembling in consistency the inverted uterus enlarged to about double its normal size. I carried my finger up with some difficulty, and found the base or attachment of the tumor to be located at the fundus of the uterus where it was narrowed somewhat, forming a sort of pedicle. The tumor felt rather soft for a fibroma, and this, together with its shape, caused me to suspect inversion of the uterus, and when I remembered that the organ is sometimes inverted by the operation for the removal of an interstitial fibroid which requires great traction, as was necessary in this case four years previously, I became much more anxious to investigate fully before attempting to remove the mass. By very careful and thorough bimanual manipulation I convinced myself that the uterus was not inverted, there was no indentation anywhere on its surface, I therefore felt warranted in adjusting the wire of an écraseur around its attachment, and proceeded to tighten it, but the traction and manipulation which were necessary in placing the noose broke the surface of the tumor and exposed a peculiar looking membrane which resembled the peritonæum. I was alarmed at this, fearing that I had really to deal with a partially inverted womb, and that the smooth membranous surface was the peritonæum. I removed the écraseur, the wire of which had broken, and then passed one finger into the bladder and another into the rectum, for the purpose of determining more certainly the condition of the peritoneal surface of the uterus. Now while an assistant made traction on the supposed tumor, I was enabled to satisfy myself fully that the organ was not inverted. I then removed the tumor by enucleation.

As you will see in the specimen which I present, there are a number of cysts. These cysts contained the semi-opaque coagulable fluid usually found in fibro-cysts, and gave to the tumor its softness which, together with its shape and the appearance of the cyst-walls when its surface was broken, made it resemble an inverted uterus. The patient made a good recovery.

The case is very unusual for the reason that although the uterine cavity was distended by a large submucous tumor which was becoming polypoid, not the slightest hæmorrhage resulted. I do not remember to have met with a similar case. I have, however, met with cases of small polypi where there was no hæmorrhage, two indeed were discovered after the menopause had been fully established and are worthy of record, because of the reflex symptoms which they seemed to induce.

Uterine Polypus in which Hæmorrhage was absent but which gave rise to Symptoms of Pregnancy. Mrs. C. was 46 years of age, she had been married twenty years, but had never been pregnant. The menopause had occurred one year previous to the date at which I saw her. Soon after the cessation of the catamenia her abdomen began to enlarge, and she thought she was pregnant, various irregular reflex symptoms of pregnancy developed and she became so convinced

that she engaged the services of an accoucheur and nurse, and went into labor in due time. Her physician, my friend Dr. John H. Musser, was unable to discover the least physical sign of gestation nor anything else which should give rise to the almost perfect labor-like pains which she seemed to have at irregular intervals. He informed her that she was not pregnant. She became indignant and asked him to call another physician to confirm what he said. He consented, and requested me to see the patient. I excluded pregnancy, but found in the cervical canal a fibrous polypus not larger than an ordinary marble. This I at once removed and the pains and other signs of gestation immediately subsided.

This was one of those cases of spurious pregnancy which we sometimes see developed in a sterile woman about the period of the menopause. The desire for offspring is strong. The cessation of the menses starts the delusion and it is kept in existence and made to grow by being constantly fed by a morbidly susceptible nervous system. But there was a local irritation here to account for the reflex symptoms of gestation, as I believe there is in the majority of these rare and interesting cases. It is three years since this patient was under treatment, and there has been no return of the reflex disturbance.

The other case to which I wished to refer occurred in the practice of my friend, Dr. B. Trautman, who kindly asked me to see the patient with him.

Uterine Polypus in which Hæmorrhage was absent, but which seemed to indicate severe reflex Head Symptoms. Mrs. K., æt. 52 years, has had two children, the youngest being twenty-five years of age. The menopause had occurred four years previously and she did not complain of the slightest local symptom of uterine disease; but the flushings and other nervous manifestations which often attend this period, had not yet subsided. The disturbances, however, which concerned her most, and for which she consulted the doctor, were a pain and pressure of a very aggravated form on the top of the head. Many remedies had been prescribed for the relief of this but with only temporary benefit. A uterine examination was made and a polypus resembling in size a small walnut discovered in the canal of the cervix. This was removed some months ago, and I believe the patient has been relieved of the headache and other reflex symptoms which seemed to result from its presence.

The influence which these small growths have on the nervous system is something remarkable, but the absence of hæmorrhage, especially in the first case, is more notable when we recall its size and location, and remember that death has resulted from the hæmorrhage caused by polypi not larger than a pea, as recorded by Locock, Klob, Courty and others. I have no doubt some of you can recall cases, as I can, where death would doubtless have resulted from the hæmorrhage produced by a small polypus, had not the cause of it been removed. The following is an illustrative case:

Uterine Polypus attended with great Hæmorrhage. Mrs. P. consulted me on September 20, 1883. She was 30 years of age and has been married eight years but has been sterile. Two years ago she began to suffer from menorrhagia with uterine tenesmus. Soon after she lost blood at irregular intervals and in large quantities; during the past year she had not often been free from metrorrhagia or a profuse and offensive leucorrhœa. The hæmorrhage would sometimes last a whole month continuously and leave her so prostrated and anæmic that it was thought she could not rally. She had lost thirty pounds in weight and was blanched in appearance.

I will confess that I was surprised to find, on examination, that my patient had a polypus not larger than a Concord grape; but the mucous membrane of the cavity of the uterus was hypertrophied and granular. The pedicle was attached far up in the cavity of the uterus. The tumor was removed by means of the curette. The patient now menstruates regularly. This case contrasts strongly with the three others in its hæmorrhagic character, and it presents the history commonly met with in these growths. There is no doubt that the location of the tumor has great influence in the causation of hæmorrhage in these cases, much greater than the size of the growth; but much also depends upon its histological character and the condition of the endometrium. Thus when a fibroid tumor or polypus is situated in the cavity of the uterus proper, more hæmorrhage is likely to result than when it grows from the tissues of the cervix, because if located in the former position it is often of the muscular variety, and therefore more vascular, and the mucous membrane of the uterine cavity, which is the direct source of the hæmorrhage, is usually hypertrophied and granular as in the last case narrated. Moreover when the cavity of the uterus is the seat of a polypus, the uterine and pelvic circulation is stimulated by its presence, somewhat in the manner in which it is affected by the presence of a fecundated ovum which has been blighted; it is a foreign body and the uterus tries to expel it, but by the effort the circulation is excited in that direction, and hæmorrhage results. My first case, however, furnishes an exception to the rule that hæmorrhage attends when the tumor occupies the uterine cavity, but as tenesmus was present, it is possible that hæmorrhage might have occurred later had the tumor been allowed to remain.

Dr. Goodell remarked that the question of hæmorrhage in polypus is a curious one. It seems less likely when the tumor is in the body of the uterus, and checks the amount of circulation by exciting tonic contractions, than when it is protruding into the vagina like the clapper of a bell. In one case, where the hæmorrhage had produced extreme anæmia, dialysed iron was given to relieve the anæmia, and it also checked the hæmorrhage. In another case, operation was refused and death resulted from hæmorrhage three days after the visit.

Rapid Dilatation of the Uterine Canal. By Wm. Goodell, M.D.: For many years I enlarged or straightened the uterine canal, according to the requirements of the case, either by tents or by Sims's operation, and preferably by the former. Having had several serious warnings in the shape of inflammation following these operations, I began to perform

them with fear and trembling. Yet nothing very untoward happened until the year 1878, when two grievous mishaps befell me.

A charming young lady, the centre of a large circle of admiring friends, came from a neighboring State to consult me about a dysmenorrhœa which grew worse and worse every year. The cervix was so bent forward, and the stenosis of its canal *per se* as well as by angulation was so marked that I unhesitatingly performed Sims's operation. Within a few days septicæmia set in, soon the parotid glands swelled up, and on the ninth day she died. True it is, that at the same time two piles also were tied, but this latter operation I had, and have, performed so many times with impunity, that I was, and am still, disposed to attribute the blood-poisoning to traumatism of the cervix and not to that of the rectum. Hardly had I time to recover from this severe blow, when a case of exhausting menorrhagia fell into my hands. The lady was the young bride of a husband well advanced in life, who doted on her as only old men dote on much younger wives. I dilated the cervical canal with tents and curetted many vegetations from the endometrium. A furious peritonitis set in and in less than three days this young wife lay dead and the husband was frantic with grief.

The anguish which I felt at the death of these two ladies, and the heart-rending scenes which I witnessed at their bedsides—scenes which I cannot now recall without emotion—urged me to try any remedy that gave promise of efficiency combined with greater safety. In the search for a substitute, I tried rapid dilatation, which Ellinger and others had proposed, and since that year—that *annus iræ*—I have not once performed Sims's operation for dysmenorrhœa, and I have so narrowed the field for the use of tents that I now very rarely resort to them. In short, rapid dilatation has proved, in my hands, so safe and so efficient an operation that I wish to urge its claims before this Society.

The instruments which I would recommend are two Ellinger dilators of different sizes. These are the best, on account of the parallel action of their blades. The smaller of these dilators has slender blades, and it pilots the way for the other, which is more powerful, and with blades that do not feather. I have had the beaks of these dilators changed from an obtuse angle to a slight curve, so that it can be reversed within the womb. The lighter instrument needs only a ratchet in the handles, but the stronger one should have a screw with which to bring the handles together. Lest the beak should hit the fundus uteri and seriously injure it when the instrument is opened, the blades are made no longer than two inches, and are armed with a shoulder which prevents further penetration. The larger instrument opens to an outside width of one and a half inches, and it has a graduated arc in the handles, by which the divergence of the blades can be read off. The instruments which I now exhibit to you, and which I can recommend highly, have been made under my supervision by Messrs. J. H. Gemrig & Son, of this city.

In a case of dysmenorrhœa or of sterility from flexion or from stenosis, my mode of performing the operation of rapid dilatation is as follows: The patient is thoroughly anæsthetized, and a suppository containing 1 grain of the aqueous extract of opium is slipped into the rectum. She is then placed on her back and drawn to the edge of the bed, the knees being supported by her nurse. The light must be good, so that the operator may clearly see what he is about. By the aid of a strong tenaculum, applied through my bivalve speculum, the cervix is steadied and the smaller dilator is introduced as far as it will go. Upon gently stretching open that portion of the canal which it occupies, the stricture above so yields that when the instrument is closed it can be made to pass up higher. Thus by repetitions of this manœuvre, little by little, in a few minutes' time a cervical canal is tunnelled out which before could not admit the finest probe. Should the os externum be a mere pin-hole or be too small to admit the beak of the dilator, it is enlarged by the closed blades of a straight pair of scissors, which are introduced with a boring motion. As soon as the cavity of the womb is gained the handles are brought together. The small dilator being now withdrawn, the larger one is introduced, and the handles are then slowly screwed together. If the flexion be very marked, this instrument, after being withdrawn, should be reintroduced with its curve reversed to that of the flexion, and the final dilatation then made. But in doing this the operator must take good care not to rotate the womb on its axis, and not to mistake the twist for a reversal of flexion. The ether is now withheld, and the dilator kept *in situ* until the patient begins to flinch, when the instrument is closed and removed. A few drops of blood trickle out of the os. Occasionally a slight flow of blood will last for several days after the operation, simulating the menstrual flux. Often this flux is precipitated or renewed, if the operation follows or precedes it too soon. The best time for dilatation is, therefore, midway between two monthly periods.

When compared with the cutting operation this one looks like rough usage, yet the woman rarely needs more than two or three suppositories, and complains merely of soreness for one or two days. To forestall any tendency to metritis, she is kept in bed until all tenderness has disappeared. Pain is met by rectal suppositories of opium and by large poultices laid over the abdomen. I have seen slight pelvic disturbance arise from this operation, but it has always been readily controlled and has not given alarm.

In the great majority of cases I dilate the canal, not to the fullest capacity of the instrument, but to one and a quarter inches. Sometimes in an infantile cervix which does not readily yield and might give way, the handles are not screwed down more than three-quarters of an inch or an inch. Tearing of the cervix has happened in two of my cases. In one, that of a virgin, the cervix was split half way down to the vaginal junction. The other case was that of a multipara, whose uterine canal had been nearly closed up by applications of silver nitrate, made by her physician with the view of curing what he supposed was an "ulceration of the os," but which was a bilateral laceration. The tissues, rendered cicatricial

and brittle by the caustic, were torn by the dilator for about half an inch on the right side also. Here the hæmorrhage was free enough to need styptic applications and a tampon. I could have stopped it by wire sutures, but this was not done, as it would have defeated the object of the operation.

For slight dilatations such as for the office treatment of anteflexions and of stenosis, or for the introduction of the curette, or of the applicator armed with cotton, the more delicate instrument is quite strong enough, and an anæsthetic is not needed. Sometimes, in a very sharply anteflexed womb the dilator can not be made to pass the os externum. This difficulty is overcome by first passing in a surgeon's probe, and then, along it as a guide, the dilator.

After a forcible dilatation under ether, the cervical canal rarely returns to its previously angular or contracted condition. Since lateral extension of elastic bodies antagonizes their length, the cervix shortens and widens; and the plasma provisionally thrown out by the submucous lesions sustained by the dilated part serves still further to thicken and stiffen its tissues. In other words, the stem-like neck of the pear-shaped womb is shortened, widened, strengthened and straightened. Hence, for straightening out anteflexed or congenitally retroflexed wombs, and for dilating and shortening the canal in cases of sterility or dysmenorrhœa, arising from stenosis or from a conical cervix, the dilator will be found a most efficient instrument. In its results it is not infallible. I have twice been obliged to repeat the operation, and would like to have done so in several other cases had the women permitted it. In a very few instances I have been forced, as a final resort, to nick a pin-hole os externum; but I had not then learned how far I could safely stretch open the uterine canal, and the operation of dilatation was not so efficiently performed by me as it is now through a larger and riper experience.

But it is not to cases of dysmenorrhœa that I limit the operation of rapid dilatation. As stated before, I use it to stretch open the canal for the admission of the curette and of sponge-tents or for the purpose of making applications to the uterine cavity. In cases needing the irrigation of the uterine cavity, I first dilate the canal with this instrument and introduce the nozzle of the syringe between the separated blades. This gives a free avenue for the escape of the liquid, and robs of its dangers this form of intra-uterine medication. I also resort to the dilator in order to explore the womb with the finger. For instance, in any given case of menorrhagia in which a polypus or some other uterine growth is suspected, instead of using tents, I put the woman under an anæsthetic, and after the rapid dilatation of the cervical canal to the utmost capacity of the instrument—viz.: one and a half inches—am enabled to pass my finger up to the fundus. This is accomplished either by drawing down and steadying the womb by a vulsella forceps; or in thin subjects by forcing the womb down upon the finger through supra-pubic pressure on its fundus. In this way I have over and over again, at one sitting, discovered a uterine growth, twisted it off and removed it. Usually in these cases I experience more difficulty in removing the polypus or other growth through the small canal than in twisting it off from its uterine attachment. It often has to be wire-drawn before it can be removed, and sometimes the os uteri has needed a few nicks. Usually, when the menorrhagia is free, the cervical tissue is so loose that there is no difficulty in the introduction of the index finger up to the fundus, but sometimes only its tip can be made to pass the os internum. Yet even this limited degree of penetration is commonly quite enough to decide the presence of an inside growth. If it is not enough, I invariably search for a growth with a small pair of fenestrated forceps, and I have repeatedly seized and removed one, the existence of which was merely suspected. After such operations the uterine cavity is thoroughly washed out with a solution of carbolic acid or of potassium permanganate.

I am sorry to say that I have not kept full records of all my cases of rapid dilatation. For instance, I have never recorded those office cases of dilatation in which ether was not given. Nor has any note been made of cases in which dilatation was performed under ether for curetting, for digital exploration of the endometrium, or for the removal of uterine growths. I have tabulated merely cases of dysmenorrhœa in single or in married women. In the married, with but three exceptions, which will be noted, painful menstruation was accompanied by sterility.

Including all the cases of dilatation performed under ether, I must have had over three hundred. I have limited myself to these cases because the use of an anæsthetic implies full dilatation—one in which serious injury, if ever, would most likely be sustained. Yet there has not been a death or a case even of severe inflammation in my practice, and the results have been most satisfactory—far more so than when the cutting operation was performed by me. The following are the statistics of my cases of dysmenorrhœa:

Unmarried	80
Married	88
	168

Of the unmarried eighteen were unheard from after the operation, leaving sixty-two from which any data could be obtained. Of these, thirty-eight were cured, seventeen more or less improved, and seven not improved at all. Of these seven that were not benefited by the operation, five subsequently had their ovaries removed; one of them by another physician and four by myself; of the latter one died. In each one the ovaries had become so altered by cystic or by interstitial degeneration as to make the dysmenorrhœa otherwise incurable. Of the seventeen improved, there was one on whom oöphorectomy was also performed; for although the dysmenorrhœa was greatly relieved by dilatation, ovarian insanity and menorrhagia were not. The operation was a successful one and my patient was not only cured of her hæmorrhages, but she regained her reason. Out of

these cases the majority, although not wholly cured, were greatly improved. For example, one of them was formerly bedridden during the whole period of her menstrual flux and had then to take large doses of morphia. She also suffered at these times from hæmatemesis and epistaxis. Since the operation she experiences pain for merely two hours, needs no anodyne, and has lost her ectopic hæmorrhages. Her gain in health and flesh has been great. Another one who was wholly crippled by her sufferings and made nervous by the dread of them is now a busy nurse. For one hour at every period she suffers a great deal but she is too much afraid of taking ether to have a second dilatation performed.

Of those cured, two had Sims's operation performed previously without benefit, and were afterwards dilated; two were dilated twice before a cure could be brought about. The history of several cases merits more than a mere allusion. The sufferings of one of my patients at every monthly period had always been great; but while she was at a boarding school they grew so intense as to cause furious delirium at those times. This finally developed into permanent insanity with suicidal impulses. While in this condition she was placed in my hands. After rapid dilatation of the cervical canal, the dysmenorrhœa wholly disappeared. The exemption from pain toned down some of her more extravagant delusions, but she did not wholly regain her reason until a few months afterwards. She is now free from all menstrual pain and in the complete possession of her mental faculties.

A Hebrew lady whose health had suffered from dreadful dysmenorrhœa was improved so much at one sitting that her physician and friends were amazed. Not long afterward he asked me to perform the same operation upon another one of his patients, who was, if anything, worse. Her sufferings were so intense that he wrote, "I fear that another period might kill her," and urged an immediate operation. The cervix in this case was conical and very dense. Fearing a tearing of the parts I screwed the instrument slowly up to one and a quarter inches and kept up this amount of dilatation for some twenty minutes. The cervix sustained no injury. The canal has since remained patulous and she is free from all menstrual pain.

Of the married, fifty-three were heard from. Of these, thirty-nine were cured, ten improved, and four unimproved. Out of these fifty-three cases, nine were not in a condition to conceive, three of them from fibroid tumors, two from destructive applications of nitrate of silver to a lacerated cervix; three from being over forty-one years of age, and one from being a widow. This leaves but forty-four capable of conception, and of these eight, or a little over 18 per cent., became pregnant. But the ratio is in fact larger, for several of my patients fearing pregnancy, employed preventive measures after the operation. Then again, I believe that others who consulted me merely for painful menstruation have not reported their subsequent pregnancies. For instance, two months ago I learned through the merest accident that the wife of a clergyman, whose cervical canal I dilated six years ago, has since been making up for lost time by giving birth to twins within a year after the operation, and later to several other children. She had been married eight years before she came to me and had had her cervical canal dilated by tents and slit up with Peaslee's metrotome by a skilful surgeon. I have also had several cases of pregnancy following office dilatations of the uterine canal, in which ether was not given and consequently the lumen of the canal was not much enlarged. But such slight operations were not deemed worthy of record, and they therefore have no statistical value.

Dr. Harris inquired about the danger of lighting up a former ovaritis by dilatation. The operation is successful, but that is its danger.

Dr. Goodell has not hesitated to operate, but always uses opium first, and by the time the operation is over the patient is under its influence. He keeps them in bed and under the opium until all tenderness has passed entirely away.

Dr. Wm. Goodell exhibited a *Dermoid Cyst of the right Ovary*. A saleswoman, aged 27, was obliged to give up her situation because she found herself unable to stand for any length of time. Her physician discovered a pelvic tumor, and called in Dr. Goodell to see her. The diagnosis was obscure, but he leaned to a fibroid degeneration of the right ovary. The woman was otherwise well, suffering no pain whatever except when she was in the upright position. The operation was performed on September 8, and the tumor turned out to be a dermoid cyst. Being enveloped in the broad ligament, it was removed with difficulty. It is stuffed with hair and contains a plate of bone, the sharp edge of which was readily felt per vaginam; but it threw no light on the diagnosis, as it was mistaken for a fibroid spur. His patient did uniformly well, and is now out of bed. He stated that in his experience these tumors are very vulnerable, and often resent even so slight an operation as aspiration, inflammation and suppuration quickly setting in. A physician had to-day brought to his office a young woman who had been tapped last June with a trocar. Long hairs and much sebaceous matter escaped through the opening, which had not yet healed up, and it was for this reason that he had been consulted. Upon passing a uterine sound he struck a foreign body, which from its density and the sharp click it gave, he was disposed to think was a tooth. He advised dilatation of the fistulous track and the removal of the offending body.

Two Cases of Oöphorectomy. Dr. Goodell also exhibited the ovaries which he had removed on September 17 and 29 from two patients who also were doing well. He stated that the amount of tissue change in these ovaries was very slight, and yet the suffering of each patient had been great. One had been an invalid for several years and bedridden for the past six months. She had lost much flesh, and was always groaning from left ovarian pain unless under the influence of large doses of morphia administered hypodermically. The left ovary was found to be undergoing cystic degeneration, but the right one was so sound that in its removal he was glad to have the backing of Prof. W. S. Playfair, of London, who was

present at the operation. For he believed that in most cases needing oöphorectomy the results usually showed failures unless both ovaries were removed and the menopause established. Convalescence after the operation had been retarded by great and painful swelling of both parotid glands, which developed without any marked rise in the temperature and without acceleration of pulse, and declined without suppuration – behaving exactly like mumps. This made his third case of parotitis following the removal of the ovaries. Not one had ended fatally, and from the very slight febrile movement, he thought that the complication was not symptomatic—as in blood-poisoning—but sympathetic, and that a strong kinship, recognized by laymen, existed between the sexual organs and the cervical glands. Since the operation all pelvic pain had ceased.

The other patient was a poor woman, aged 30, the mother of seven children. She was sent to him by Dr. Geo. S. Hull, of Chambersburg, Pa. Three years ago she began to suffer from double ovaralgia. The pain never left her wholly, but it began to increase in severity a week before the period, culminated during the flux, and faded off afterwards. Large doses of anodynes were also needed in this case, and she was unable to work. The case was clearly one of ovarian dysmenorrhœa, and he believed she would be permanently cured.

Dr. Chas. H. Thomas asked Dr. Goodell his experience of the results of oöphorectomy. What proportion of cases are relieved?

Dr. Goodell could not reply definitely. He intends to report his cases before this Society at some future time. In the majority of cases, menstruation ceases, and that element of trouble being removed the patient is to that extent always improved. The neurasthenia resulting from previous suffering may remain, but it is far more amenable to treatment after the cause has been taken away. One such case has occurred to him recently. Dysmenorrhœa caused a virtual insanity with a mind constantly wandering. The removal of the ovaries at once cured the dysmenorrhœa. The patient is now able again to walk and the mind is improving. The operation removes the major element.

Dr. Thomas has now in his care a case which he thinks typical. The patient is a literary woman, overworked and crushed by family anxieties and depressing emotions. He prescribed rest and feeding. Massage proved of but little use and electricity yielded negative results. Forced feeding became impossible. During menstruation she suffered for two or three hours with moderate dysmenorrhœa. Signs of ovaritis developed with swelling and hardening in the right iliac region. The patient was etherized, and a careful examination resulted in finding nothing materially wrong. As soon as anæsthesia was complete all the induration and tumefaction disappeared. There was an ulcer of the rectum and moderate anteflexion of the uterus. The ulcer has since been cured, but there is no sensible relief. She suffers from a violent pain in the right ovary, extending to the coccyx and across the abdomen ; it is cutting in its character at all times, and terribly severe. Formerly it ceased at night, but does not now. Hypodermic injections of morphia night and morning are necessary. Riding increases the pain which often extends down the right leg. She cannot sit up long without increasing the pain, which is evidently getting worse day by day. She has been totally disabled for nearly ten months. Is this pain hysterical? Can it be relieved by oöphorectomy?

Dr. Goodell remarked that oöphorectomy is, in any case, a question requiring serious consideration. In the cases just related by him, the patients had neither the means nor the time for prolonged treatment. Whenever possible, everything should be tried before resorting to an operation. One bedridden case under his care, very analogous to Dr. Thomas's, had been relieved by the long-continued use of the constant current passed through the affected ovary. A feeble current was kept up for many hours, sometimes for a whole night at a time. The patient ultimately got well, bore several children afterward, and is now earning her living by teaching.

CHICAGO MEDICAL SOCIETY.

Dr. D. A. K. Steele, President. The regular semi-monthly meeting of this Society was held at the Grand Pacific Hotel on the evening of October 6, 1884.

Dr. John Bartlett, Chairman of the Committee on National Sanitation, reported that while they had agreed on the substance of the proposed resolutions to be submitted for presentation to Congress, they were not in shape to report to the Society, although signed by most of the members. He therefore asked for further time to consider the matter, which was accorded.

Dr. John H. Rauch, Secretary of the Illinois State Board of Health, had read the resolutions prepared by the committee, and as he had been invited by one of its members to address the meeting on their importance, and that of national coöperation with State and municipal governments in arresting the spread of epidemics, he said that matters should be so arranged that there would be concert of action in all municipal cities and State Boards with a national health organization; that the national government should have control of inter-State quarantine, he had no doubts. The trouble all arises out of inefficient maritime quarantine. Illinois was specially interested in this from the St. Lawrence river to the Rio Grande river, and from the Atlantic ocean to the Pacific ocean, for this State pays more internal revenue tax than any other State in the Union, New York not excepted. Cholera may arrive at Montreal or Quebec, and be brought to this city and State over the Grand Trunk railroad, the Michigan Central railroad, or Michigan Southern railroad, and we have authority to stop these trains at the State line only, and prevent them entering the State of Illinois. New York controlled that port exclusively, and Illinois had no authority to interfere, while her interest in keeping out diseases was just as great as that of New York. The Illinois Board of Health was prepared to

prevent the entry of infectious and contagious diseases, no matter what contingency might arise, but it would be better if she could depend upon the aid of her sister States who were equally interested. Two-thirds of the number of emigrants coming to this country arrive at the port of New York. The emigrant inspection service carried on by the National Board of Health a few years ago, under the auspices of the national government, was done at a cost of only $50,000, when some forty odd thousand emigrants were vaccinated on the trains, and there was no detention. The National Board of Health no longer exists except in name, the last Congress having cut off all appropriations, consequently we are not in as good shape to ward off epidemics as we were three or four years ago. An endeavor to protect the States cannot be well done, on account of inefficient maritime quarantine, and the only resource we have at present to cope with these diseases is for the different States to act in good faith and compact with each other. An illustration was cited by the speaker to prove his statement correct, where in 1878–79, along the banks of the Mississippi and Ohio rivers, epidemics prevailed; that since the organization of the Sanitary Council of States along these rivers, infectious diseases and all other diseases are much less.

The speaker then recited the history of the National Board of Health, its origin, the inefficiency of our laws, etc., and cited as further illustrations, how inadequate the surgeon of this port, and the one at Cairo would be to antagonize or cope with any form of epidemic; that instead of this being only under the control of the State, it should be controlled by the national government. Now is the time to prepare to secure legislation, instead of waiting until after the heels of an epidemic, as has been done heretofore. Those who have charge of sanitary interests in the different States should study the causes of disease, investigate the subject, and through thorough cooperation with a national health bureau, we would be well prepared to prevent the advent of cholera next year. The machinery of no one man can be made to work or control the state of commerce satisfactorily, nor can this be done by one State alone, more States should be represented and concert of action of all those in authority should prevail. The United States Treasury is entirely independent of States in this respect. A conference of the boards of health of the several States and Territories will be held at St. Louis next week, having for its object the coöperation of all authorities for the purpose of controlling epidemics and contagious diseases. He thought that some plan would be evolved that would prove more satisfactory to all, and do away with the petty jealousies that have hampered the action of the national health bureau. The general feeling prevails that we are going to have cholera in this country next year, and now is the time to prepare for it as the resolutions call for. Dr. J. H. Hollister said that as a member of the committee he should decline to attempt to instruct Congress as to its duties in the matter, but thought that a memorial presented by this Society would be the better mode of expression. If our memorial to Congress is only to express a desire as to what is most wanted by the public, then we, as medical gentlemen, have done our part. It is a subject that takes hold of common interests, and how to render efficient aid suitably but not unnecessarily is something that requires more wisdom than can be gained by temporary discussion. He thought our wisest men should meet in conference and unite on some practical method and then urge legislative action. The speaker asked Dr. Rauch, to what extent are States moving in this direction of having State Boards of Health organized? and to what extent does their authority reach? He was answered, that Massachusetts, New Hampshire, Connecticut, New York, New Jersey, Maryland, West Virginia, Virginia, Indiana, Illinois, Michigan, Kentucky, Tennessee, Louisiana, Mississippi, Arkansas, Alabama, Iowa, Wisconsin, Minnesota and Missouri, each have their State Board of Health. Ohio, Pennsylvania, Maine and Vermont have no State Boards of Health. Lower Canada has none. But that the Ontario Board of Health is in good shape. The Michigan Board of Health is an advisory one. The Illinois Board of Health controls quarantine and can call on sheriffs and constables to obey her dictation. The boards of Missouri and Minnesota are nearly like ours, New York's board is partly like ours in authority. Indiana's board is nearly like ours, only better, for there they have County Boards of Health. The Boards of Health of Maryland and Virginia are also very efficient. Dr. L. H. Montgomery alluded to the merits of the National Board of Health, to the efficient services it had rendered in the past, and hoped it would be adequately provided for in the future. He had spoken to the representative in the Congressional district where he resides upon the subject, and was informed by the member that he would be glad to do his part and use his influence toward securing the granting of legislation for the establishment of some form of a national sanitary organization. The speaker was also assured by the honorable gentleman that he had been, and at present is a friend of the National Board of Health, for its services were performed with a degree of celerity and exactness that pleased everybody in the States. Regarding memorializing Congress, as Dr. Hollister alluded to, there is a clause in the resolutions providing for this.

Every State and Territory in the Union should be represented on this board by the appointment of some one representative medical gentleman to it, for, as Dr. DeWolf said, inter-State observation. Indeed we might do more if needs be than transmit a memorial to Congress, but petition, or appeal to our national legislators to appropriate sufficient means and appliances to sustain some form of National Health Association, which he believed is the sentiment of at least nine-tenths of the physicians and all the people.

Dr. R. E. Starkweather had hoped that the committee were prepared to submit their resolutions this evening. He as one of its members endorsed every word they contained, even at the risk of their being (as possibly they were in one place) tautological. He hoped the committee would be able to perfect them before the close of the week. Dr. Rauch

in conclusion stated that he intended to speak to some extent upon this subject at the meeting of the State Boards of Health to be held at St. Louis next week. A special meeting will probably be held at Washington in December of all the State sanitary boards, at which time this subject will receive especial attention. The Society tendered a vote of thanks to Dr. Rauch for his address and information given. The committee on resolutions was requested to meet immediately after the close of this meeting, which was then adjourned. LISTON H. MONTGOMERY, M.D., Secretary.

AT a regular meeting of the Washington Obstetrical and Gynæcological Society, held October 17, 1884, the following officers were elected for the ensuing year:

President.....Samuel C. Busey, M.D.
Vice-Presidents.....W. W. Johnston, M.D., and J. Taber Johnson, M.D.
Recording Secretary...C. H. A. Kleinschmidt, M.D.
Corresponding Secretary....Samuel S. Adams, M.D.
Treasurer.....Geo. Byrd Harrison, M.D.
Committee on Business.....C. E. Hagner, M.D. Lachlan Tyler, M.D. S. S. Adams, M.D.
Committee on Admissions..J. R. Bromwell, M.D. H. H. Barker, M.D. G. N. Acker, M.D.
Com. on Publications T. C. Smith, M.D. T. E. McArdle, M.D. C. H. A. Kleinschmidt, M.D.

STATE MEDICINE.

MICHIGAN STATE BOARD OF HEALTH.

Reported for the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

The regular quarterly meeting of the Michigan State Board of Health was held at Lansing, Oct. 7, 1884, the following members being present: Henry F. Lyster, M.D., of Detroit; J, H. Kellogg, M.D., of Battle Creek; C. V. Tyler, M.D., of Bay City; and Henry B. Baker, M.D., Secretary.

The Secretary's report of property, etc., for the fiscal year ending Sept. 20, 1884, showed that large accessions had been made to the library by gift and exchange, and a lesser number by purchase, and that unusually large distributions of public health documents had been made during the year.

Prof. R. C. Kedzie presented nine samples of drinking water taken from the public water supplies of Bay City, West Bay City, Grand Haven and Ludington, all of which showed large quantities of organic matter and other impurities. Prof. Kedzie was granted till Nov. 1 to complete his paper on "Potable and Culinary Waters in Michigan, with especial reference to contamination by sawdust" for publication in the Report of the Board for 1884. Dr. Kedzie was also requested to make a special report on the use of explosive substances for heating and lighting purposes.

It was decided to hold a sanitary convention at East Saginaw in December, and a committee was appointed to confer with a local committee as to date, programme, etc.

At a request of the Board of Correction and Charities, committees were appointed to examine and report on the sanitary condition of the State House of Correction at Ionia, and on the sanitary bearings of the use of boiler-iron for cells in jails.

The Secretary continued his report on outbreaks of cheese-poisoning. Seven outbreaks in Michigan had been reported this year, in which there were 190 cases of sickness, but no deaths. The symptoms following the eating of the cheese were very similar in all cases, consisting of pain in the stomach, cramping of muscles, coldness of extremities, and great prostration, with violent retching and purging, lasting for several hours. In most cases the larger the amount of cheese eaten, the more violent were the symptoms. Samples of the Lowell cheese had an acid reaction and a peculiar strong odor, believed to be due to caprillic acid or capraic acid; examined with a one-tenth inch immersion objective, the cheese was found to contain the mycelium of a mold, and to be swarming with several kinds of actively moving bacteria. Samples of the cheese were sent to Dr. V. C. Vaughan, of Michigan University, and to Prof. T. J. Burrill, of Illinois State Industrial University, for further examination and experiment.

Further time was given to the committee on textbooks on physiology and hygiene. The Secretary called attention to a sanitary house-to-house inspection which had been made recently in the city of Ann Arbor. It is believed that this is the first systematic inspection of the kind ever made in this State.

A paper on Typhoid Fever was presented by the Secretary, and was approved for publication in the Annual Report of this Board.

The State has been free from small-pox during the quarter.

The recent report that pleuro-pneumonia exists among cattle in the vicinity of Nashville, Mich., proved on inquiry to be unfounded. During the quarter glanders was reported present among horses in Delta county. Letters were sent to health officers or supervisors of all townships where the disease was reported to exist, urging prompt action on the part of the local boards of health to exterminate the disease. It is believed that there are fewer cases than were at first reported. As one result of the correspondence, two of the infected horses were shot by their owner.

The Secretary reported the preparation, publication, and distribution of 12,000 copies of the document on the Prevention and Restriction of Cholera. A similar document on cholera in its relations to railroads had also been prepared at the request of the Commissioner of Railroads, and had been printed and distributed by the Commissioner, in connection with a circular from his office to all railroad officials in Michigan.

A list of the names and addresses of the health officers of Michigan has been printed and a copy

sent to each local board of health. The document on the Restriction and Prevention of Diphtheria has been revised with reference to new laws and reprinted. The new compilation of the public health laws has been distributed to every health officer in the State,—a class of persons who do not receive the session laws.

HEALTH IN MICHIGAN, SEPTEMBER, 1884.

Reports to the State Board of Health, Lansing, by observers in different parts of the State, show the diseases which caused most sickness in Michigan during the month of September (four weeks ending Sept. 27), 1884, as follows:

Number of Weekly Reports Received, 184.		For Preceding Month.
Diseases Arranged in Order of Greatest Prevalence.	Per Cent. of Reports Stating Presence of Disease.	Per Cent. of Reports Stating Presence of Disease.
Intermittent fever	84	84
Diarrhœa	79	88
Consumption of lungs	62	62
Rheumatism	61	61
Remittent fever	61	59
Neuralgia	58	57
Bronchitis	49	44
Dysentery	48	56
Cholera morbus	42	62
Typho-malarial fever	41	27
Cholera infantum	38	51
Tonsillitis	35	31
Influenza	28	24
Typhoid fever (Enteric)	22	15
Diphtheria	22	19
Whooping-cough	21	22
Erysipelas	19	22
Pneumonia	18	13
Inflammation of bowels	16	21
Scarlet fever	12	11
Inflammation of brain	7	8
Measles	6	10
Cerebro-spinal meningitis	6	5
Puerperal fever	5	6
Membranous croup	5	3

For the month of September, 1884, the reports indicate that typho-malarial fever and typhoid fever increased, and that cholera morbus, cholera infantum, diarrhœa, and dysentery decreased in prevalence compared with August, 1884.

Compared with the average for the month of September in the six years 1879–1884, intermittent fever, typho-malarial fever, diphtheria, pneumonia, and remittent fever were less prevalent in September, 1884. There was no marked increase in the prevalence of any disease reported in the month of September, 1884, compared with the average of that month.

For the month of September, 1884, compared with the average of corresponding months for the six years 1879–1884, the temperature was higher, the absolute humidity was more, and the relative humidity and the day and the night ozone less.

Including reports by regular observers and others, diphtheria was reported in Michigan in the month of September, 1884, at 25 places, namely: Armada, Bloomfield, Detroit, Douglas, East Saginaw, Edmore, Fowlerville, Flint, Grand Rapids, Hastings, Handy, Ionia, Ishpeming, Ithaca, Kalamazoo, Marquette, Medon, Muskegon, Port Huron, Prairie Ronde, Romeo, Sand Lake, South Haven, Vassar, Wyandotte. Scarlet fever at 27 places: Cadillac, Detroit, Dorr, Dowagiac, Fairfield, Grand Rapids, Howard City, Ionia, Jerome, Kalamazoo, Monroe, Muir, Muskegon, Swartz Creek, St. John, Vicksburg, Wexford. Measles at Detroit and Whitehall.

HENRY B. BAKER,
Secretary.

LANSING, Oct. 2, 1884.

DOMESTIC CORRESPONDENCE.

OVARIOTOMY.

TO THE EDITOR:

Dear Sir.—In your issue of Sept. 20th I am reported (p. 321) as saying: "Since the 1st of October last I have performed five cases of ovariotomy—one at the University of Ann Arbor in the presence of the class; one in a cottage by the roadside; and three other cases. And my five patients have recovered."

A professional brother who was cognizant of and to some extent interested in some of these cases has kindly pointed out to me that one of them was done on Sept. 25 instead of October 1, and that a case which terminated fatally was done in the early part of October. The remarks made by me in the Obstetrical Section of the American Medical Association were entirely extemporaneous, and it seems that I must have inadvertently transposed these two cases, which had been operated upon within a few days of each other. By going back five days further in my experience, and saying *since Sept. 25* I have performed *six* ovariotomies, one before the class at Ann Arbor and *five* in "cottages by the wayside," and of that number five recovered and one died, I would have been *perfectly correct.* I might have added that the one fatal case, in point of surroundings, nurses, etc., was the most favorably situated of all. (It was, however, a case in which the tumor was largely composed of solid sarcomatous structure, had many adhesions, together with a bad general condition of the patient mentally as well as physically).

As my remarks reported in your issue referred to were rather of a controversial nature, I have thought it necessary to make this full and candid statement in order that even the appearance of inaccuracy might be avoided.

Having the fullest confidence in the justness of the point which I aimed to make, and having the highest respect for the audience I had the honor of addressing, nothing could have been further from my intention than to weaken my argument and insult my hearers by the presentation of statements or figures not absolutely in accordance with the truth.

I am, dear sir, truly yours,

DONALD MACLEAN,
72 Lafayette Avenue, Detroit.

Oct. 9, 1884.

BOOK REVIEWS.

SEXUAL NEURASTHENIA, (nervous exhaustion) its Hygiene, Causes, Symptoms and Treatment, with a Chapter on Diet for the Nervous. By GEO. M. BEARD, A.M., M.D., late Lecturer University of City of New York, etc., etc. (Posthumous manuscript). New York: E. B. Treat & Co. Pp. 269. Price, $2.

These posthumous papers have been edited by A. D. Rockwell, M.D., an intimate associate and coworker with Dr. Beard.

Under the term *neurasthenia*, the latter was one of the first among medical writers to describe the various phases of nervous exhaustion now so well recognized as forms of the same disease, and to mark out more simple paths of treatment.

The tonic use of electricity was first clearly set forth by these writers.

Very properly much space in the present work has been given to the subject of sexual hygiene. The relation of sexual neurasthenia to other diseases also receives careful consideration.

In our opinion, the opening chapter on the varieties of general neurasthenia is one of the most satisfactory in the book.

Concerning the chapter on Treatment, this cannot be said, although here, as in all parts, the book is far superior to Dr. Hammond's.

Beyond the mental effect produced, there is grave question of the therapeutic value of local treatment—soluble bougies, sounds and powders, rectal treatment, cauterizing and soothing injections, localized electrization, etc., etc. General medication is carefully discussed, and its indications most intelligently set forth. There is throughout the book a certain carefulness and fairness of statement which lend a real interest to the author's style. E. W. A.

THE RELATION OF ANIMAL DISEASES TO THE PUBLIC HEALTH, AND THEIR PREVENTION. By FRANK S. BILLINGS, D.V.S., Grad. Vet. Inst. Berlin, etc., etc. N. Y.: D. Appleton & Co. 1884. Pp. 446.

This is a timely work, inasmuch as public attention has of late been arrested by the recent outbreaks of hog cholera and of pleuro-pneumonia in our own States, and by the wonderful discovery of protection by vaccination against anthrax and even hydrophobia by Pasteur.

The work treats of the *Prevention* of *Diseases* but not of their *Treatment*, which of course makes it valuable to the medical and general public rather than to veterinarians proper.

It is in fact a work which ordinarily intelligent people of all classes of tastes will find instructive, because it opens out topics to which most of them are sadly inattentive.

The great majority of educated men are now quite well informed in such sanitary matters as pertain to house drainage, correct plumbing, ventilation, and the like, because a vast amount of useful literature has been disseminated on these topics.

But as to the true nature and prevalence of the infectious and parasitic diseases communicated by domestic animals to men, the same class of persons know little and care less, never having been brought to realize their increasing prevalence.

The author deems it proper to use some decided and severe language in characterizing the efforts or want of efforts of sanitarians in America to meet the threatened dangers of glanders and other contagious diseases.

He does so in the belief that the evils so severely combated are not "straw men," imaginary creations, but "actual evils that, unless prevented, will work most serious injury to the country in the not distant future.

The work is divided into three parts viz.: Part I, *Diseases* of Domestic Animals. Part II, History of Veterinary Medicine. Part III, The Means of Prevention.

The last part contains the following chapters: "A National Veterinary Police System;" "The Foundation of Veterinary Schools in the United States;" "State Veterinary Schools;" "A National Veterinary Institute."

One of the most interesting chapters is that on Trichiniasis, in which it is conclusively shown that American hogs are more affected than European.

The author's analysis of the conflicting mass of evidence on this question is judicious and impartial, and he is able to sift out much error and misrepresentation on the part of those whose judgment has been swayed by self-interest in forming their conclusions.

Very explicit directions are given in the mode of discovering the trichinæ by the microscope, and the objects likely to be mistaken for them are pointed out.

Hog cholera, anthrax, Texas fever, glanders (in the horse and in man), etc., receive also most careful and critical attention.

That this work will spread much useful information and be of public benefit is certain.

MISCELLANEOUS.

PROGRAMME OF THE NINTH ANNUAL MEETING OF THE AMERICAN ACADEMY OF MEDICINE.

The sessions will be held in Hopkins Hall, Johns Hopkins University, Baltimore, Maryland, Tuesday and Wednesday, October 28 and 29, 1884. Benj. Lee, M.D., Philadelphia, President; R. J. Dunglison, M.D., Philadelphia, Secretary; Chas. McIntyre, Jr., M.D., Easton, Pa., Assistant Secretary.

TUESDAY, OCTOBER 28, 3 P. M.

Opening of session with prayer; reading of minutes of last annual meeting; report of Council; election of Fellows; appointment of committee on nominations; reading of papers: "The Relation of the Medical Colleges to Preliminary Education. By Peter D. Keyser, A.M., M.D., of Philadelphia, Pa.; "The Examination of Applicants for License to Practice, a Means of Raising the Standard of Medical Education." By Edward Jackson, A.M., M.D., of Phila-

delphia, Pa.; "The Rôle of Bacteria in Infectious Diseases." By Henry O. Marcy, A.M., M.D., of Boston, Mass.; "The Trade Aspect of Medicine." By Albert H. Gihon, A.M., M.D., Medical Director U. S. Navy; "The Induction Coil; Its Varieties and the Differential Indications for their Use." By A. D. Rockwell, A.M., M.D., of New York, N. Y. Report of Treasurer; unfinished business; new business.

AT EIGHT O'CLOCK, P. M.

Address by Benjamin Lee, A.M., M.D., of Philadelphia, Pa., President, on "Differentiation the Test of Civilization: The Specialist and his Education."

WEDNESDAY, OCTOBER 29, 10 A. M.

New business; report of Committee on Nominations; reading of papers: "The Teaching Derived from Observations in 137 Abdominal Sections." By R. Stansbury Sutton, A.M., M.D., LL.D., of Pittsburgh, Pa.; "Some Comparative Results of Treatment of Chronic Articular Osteitis of the Hip." By Virgil P. Gibney, A.M., M.D., of New York, N. Y. "The Place of the Physician in Literature." By Charles C. Bombaugh, A.M., M.D., of Baltimore, Md.; "The Aim in Treatment of Angular Curvature of the Spine." By T. M. Ludlow Chrystie, A.M., M.D., of New York, N. Y.; "Physiology in Its More Public Relations" (Public health, physical culture, family institution, true civilization). By Nathan Allen, A.M., M.D., of Lowell, Mass.; "Statistics of Glaucoma." By Herman Knapp, A.M., M.D., New York, N. Y.; "Specialties and Their Relation to the Medical Profession." By L. Duncan Bulkley, A.M., M.D., of New York, N. Y.; "Report on Laws Regulating the Practice of Medicine in the United States and Canada." By Richard J. Dunglison, A.M., M.D., of Philadelphia, Pa., and H. O. Marcy, A.M., M.D., of Boston, Mass. New business; Induction of President-elect; appointment of additional Members of Council; unfinished business; adjournment.

The Annual Collation will take place at the Athenæum Club, corner of Charles and Franklin streets, Baltimore, on Tuesday evening, October 28, at half-past nine o'clock, immediately after the President's Address. Fellows desiring to participate will please forward two dollars to Dr. C. C. Bombaugh, P. O. box 498, Baltimore, Maryland.

Dr. J. S. Billings, Surgeon U. S. Army, and a Fellow of the Academy, has kindly offered to show the new Johns Hopkins Hospital, on the afternoon of Wednesday, October 29, to those Fellows of the Academy who may desire to see it.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM OCTOBER 11, 1884, TO OCTOBER 17, 1884.

Norris, Basil, Lieut.-Colonel and Surgeon, relieved from duty as attending surgeon, Washington, D. C., and ordered for duty as Medical Director Div. of the Pacific and Dept. of Cal., relieving Surgeon E. I. Baily. Col. Baily, on being relieved, will assume the duties of attending surgeon at San Francisco, Cal.

Spencer, Wm. C. Major and Surgeon, from Dept. of Dakota to Dept of the East.

Goddard, Chas. E., Major and Surgeon, to be relieved from duty at Jefferson Bks., Mo, and to report for duty in department of Dakota.

McClellan, Ely, Major and Surgeon, from department of the East to duty at cavalry depot, Jefferson Bks., Mo. (S. O. 242, A. G. O., Oct. 15, 1884.)

McKee, Jas. C., Major and Surgeon, granted leave of absence for one month with permission to apply at division headquarters for one month's extension. (Par. 1, S. O. 149, Dept. Col., Oct. 3, 1884.)

Loring, Leonard Y, Captain and Assistant-Surgeon, from Dept. of the East to Dept. Cal.

Harvey, Philip F., Captain and Assistant-Surgeon, from Dept. of Dakota to duty in Attending Surgeon's office, Washington, D. C., relieving Robert W. Shufeldt, Captain and Assistant-Surgeon, who, on being relieved, will report to commanding general Dept. Mo. for duty. (S. O. 237, A. G. O., Oct. 9, 1884.)

Porter, J. Y., Captain and Assistant-Surgeon, granted leave of absence for one month, on surgeon's certificate of disability, with permission to leave the limits of the department. (Par. 3, S. O. 138, Hdqrs. Dept. Texas, Oct. 9, 1884, confirms telegraphic order of same date.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING OCTOBER 18, 1884.

Brush, Geo. R., Surgeon, to temporary duty at the Naval Laboratory, Oct. 11, 1884.

Burbank, Chas. H., Medical Inspector, detached from the Brooklyn and placed on waiting orders, Oct. 15, 1884.

Clark, John H., Surgeon, detached from the Lackawanna and detailed as fleet surgeon of the Pacific Station, Oct. 17, 1884.

Cooke, George C., Surgeon, to the Lackawanna, Oct. 17, 1884.

Edgar, John M., Passed Assistant Surgeon, to the receiving ship Franklin, Oct., 1884.

Hudson, A., Medical Inspector, detached from the Lancaster and placed on waiting orders, Oct. 14, 1884.

Hugg, Joseph, Surgeon, placed on waiting orders, Oct. 13, 1884.

Lovering, P. A., Passed Assistant Surgeon, detached from the Lackawanna and placed on waiting orders, Oct. 17, 1884.

Marsteller, E. H., Passed Assistant Surgeon, detached from the Monongahela and ordered to the Lackawanna, Oct. 17, 1884.

Martin, William, Assistant Surgeon, detached from the Passaic, and placed on waiting orders, Oct. 14, 1884.

Martin, H. M., Passed Assistant-Surgeon, detached from the Brooklyn and placed on waiting orders.

THE

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ORIGINAL ARTICLES.

THE RELATION OF MICRO-ORGANISMS TO SURGICAL LESIONS.

BY HENRY O. MARCY, A.M., M.D., OF BOSTON.

Read to the Section of Surgery and Anatomy of the American Med. Association, May, 1884.

The positive demonstration of the important factorage of bacterial growths in surgical lesions would seem no longer wanting. The recognition of this in the evolution of the systems of modern wound treatment is apparent.

The ill effects of the retention in wounds and cavities of the secretions contaminated with putrefactive bacteria have long been recognized, yet, it has remained for modern investigators to demonstrate that this ill effect is owing to germ development. It would have appeared easy of inference, that this was due in some way to atmospheric, and since the knowledge of the causes of fermentation, to a particulate organic infection, since very severe lesions, attended with abundant exudation, commonly recover without suppuration, when the skin covering the wound is unbroken. When these exudations undergo fermentation from the growth therein of micro-organisms, there is generally developed an entirely new and different class of symptoms, both local and constitutional.

I am ready to admit that many questions of great magnitude remain unsettled, that many subjects connected therewith are shrouded in doubt and obscurity, and that many fields of great promise remain yet for exploration. While this may temper our zeal and cause us to examine with double caution our premises and conclusions, it can not the less stimulate every thoughtful student to better endeavor and renewed effort.

Dr. Pilcher, in his recent excellent work upon "The Treatment of Wounds," defines aseptic wounds to "include all which are preserved from contamination by poisonous materials, whether such poison be applied directly to it, or be generated in it by the action of germs that gain access to it and find within it the conditions favorable for their growth. An aseptic condition in a wound may be obtained, either by the protection which the wound receives from the first against the access of any septic agent, or by the power of living tissues to resist and destroy septic agents, or by the application to the wound of substances which destroy them. Examples of the first class are presented in subcutaneous wounds, and in operative wounds which are inflicted with certain precautions; examples of the second class are seen in all open wounds in which union by first intention is secured, notwithstanding at the time of their infliction they were freely exposed to ordinary air; examples of the third class are presented by wounds in which the application of antiseptic substances has been successful in arresting the action of whatever septic agents may have previously gained access to them. Asepsis in a wound is of the highest importance. As long as it is maintained, no decomposition of the secretions of the wound takes place, no sloughing of killed or partly killed tissue occurs. When the proper cares to favor the nutrition of the wounded tissue are rendered, the healing of the wound progresses without pain, inflammation, or suppuration, and the least possible amount of cicatricial tissue is produced. To secure an aseptic condition in a wound, or to approach it as nearly as possible, is the first and most important indication in wound treatment."

I have myself elsewhere given the definition somewhat epigrammatically, as a wound surgically clean, and this for our present purpose would serve for the distinction between aseptic and septic wounds. Although seemingly lost sight of in many of the heated discussions upon this subject, the great fundamental factor of repair, the *individual vital force*, under conditions favorable, or otherwise, must ever hold the first place.

This, however thoughtfully considered, can never be fully resolved and in individual instances expressed in known terms, but remains somewhat as an X factor in the equation of life's processes, like the estimate of a business man's fortune, subject to modifying influences, both inherent and extraneous, and never to be fully inventoried, until the estate is finally settled. These varying factors may be catalogued, as race, age, idiosyncrasies, mental state, constitutional condition, disease, hygienic surroundings, etc.

Bioplastic or living matter possesses in itself, in greater or less degree, the power of resisting extraneous influences. This power to maintain the equilibrium of the active, functionating state of the organism, although possessed in a greater degree in the higher and more complex forms of development, is ever subject to the influence of its surroundings.

These must be the more important to the individual having suffered devitalization from injuries. Hence, the thought long bestowed upon the sanitation of the wounded, pure air, sunlight, careful cleanliness of person, clothing, room, etc. In a general way all these may be considered antiseptic conditions of the best character, yet pure air does not destroy the particles of infection, it only dilutes them. The sunshine and fresh air add to the bioplastic power of the tissues and give increase of individualistic function to resist the influence of deleterious agencies.

Time fails to pass even in rapid review the painstaking labors and researches for the ultimate causes of the changes which result in the disorders of repair. Most of us remember the long and seemingly fruitless discussion upon the question of spontaneous generation. The result of all this has been the final demonstration to the acceptance of the scientific world of the particulate theory of fermentation. We are especially indebted to the researches of Pasteur, Tyndall and Lister, for the setting at rest this vexed question, and to the latter, for the application of the deduction, that from such causes there resulted dangers to wounds and often to life.

The best methods by which to limit, lessen and control, if not to destroy the causes of these dangers was the self-imposed task of the enthusiastic innovator who, true to the divinity of his inspiration, has labored all these years with a singleness of purpose rarely surpassed.

The very meaning of the Greek word septikos signifies, that which *causes* putrefaction, and per consequent, antiseptic can have but the one meaning, that which is directed against the *causes*, not the effects of putrefaction. If it be true, that putrefaction cannot take place without fermentation, and fermentation is almost without exception caused by the growth of the lowest orders of the spore-producing plants, it would seem simple to formulate, that to the rôle of these micro-organisms should be ascribed the putrefactive changes and their deleterious consequences, incident to open wounds. Thus these organisms, so minute as to have escaped, in the main, the notice of most observers in the early days of microscopic training and study, or as at the most incidental and unimportant, have recently acquired an interest of primary character not alone to the surgeon and physician, but also in no less degree to the sanitarian.

The best illustration of an aseptic wound is one where nature herself has given it the safest protection from deleterious external causes, by keeping it still covered by the unbroken integuments. A subcutaneous injury has from time immemorial been recognized, even by superficial observers, as one of distinctive differences of danger and course of repair, from one where the injury is simply augmented by the laceration of the skin. None have contended that it was the simple factorage of broken integument that rendered the difference, but the causes have been more commonly sought in the various modifications induced by atmospheric exposure and consequent chemical changes.

Defects of bioplastic power, both constitutional and local, result in disorders of repair; defects of apposition prolong the process and make extra demands for reparative material; but in defects of *protection* are found conditions which produce arrest of reproduction and destruction of the adjacent tissues. It is clearly established that the disturbing elements arising from atmospheric contact come only from the organic, living particles which it holds in suspension (germs), and these spores under favorable conditions rapidly germinate. These minute organisms are seemingly omnipresent. They develop in the secretions which issue from the animal economy, infest the skin, literally devouring its waste, a hundred feasting upon a single epithelial scale, and they reproduce in myriads in the alimentary canal. Notwithstanding all this, these organisms are never found in the tissues of the healthy living body, and to a certain extent, these tissues are endowed with the power to resist their action and even to produce their destruction when brought in contact. It must be ascribed to this power in living matter, that the germs which have gained access to the tissues through a wound often do not develop, when speedy and complete approximation of the parts has been effected.

This has long been recognized as primary union in wounds, and has often been held in illustration that antiseptic methods were, in at least certain conditions, unnecessary, and that these minute beings, after all, could not be capable of such dire disaster as has been claimed to result from their development. Given a wound where approximation fails, and a fluid exudation fills a hidden recess, and here we find most favorable conditions for germination after such atmospheric infection, and a long train of deleterious results, frequently ending in death, ensues.

The form of germs which produce fermentation may be classified under three general types—the micrococcus, the bacillus, and the yeast cell. Varieties known as bacteria of different forms may be referred to one or another of these types. The yeast plant only develops in the fermentation of saccharine materials, and plays no part in surgical affections. Bacilli and micrococci require albuminoid compounds for their development. Both forms are usually found in open wounds. When the micrococci only are present, we have decomposition without odor, but the development of bacilli is always accompanied with odor more or less fetid. According to Ogston, the occurrence of a putrid odor is absolutely sure to indicate the presence of some of the varieties of the rod-bacteria. According to Cheyne, the more putrid the discharge the more numerous and smaller are the bacilli. These organisms have less inherent vitality than micrococci. They limit their invasion to material already devitalized, and are never found in the living tissue. These bacilli are comparatively easily exterminated from a wound, by the removal of the decomposing material necessary for their consumption. They are also quite readily acted upon by the various germicides and destroyed.

The spherical organisms, micrococci, on the contrary, are much more difficult of extermination. They reproduce in chains and masses, and in the latter form are found frequently colonizing in different parts of

the body; thus they not infrequently obstruct and dilate a capillary vessel, and cause widely disseminated abscesses, as in pyæmia. They vary greatly in number. Ogston estimated that in one specimen of pus one cubic millimetre contained 45,000,000, while two other specimens of the same bulk contained less than 1,000.

They are cultivated without the production of any especial odor, and generally their presence in a wound is not indicated by any change perceptible to the olfactory sense, except perhaps a slightly sour smell. There can be little doubt that there are varieties of micrococci identical in appearance, as exhibited by any means yet devised, but which nevertheless possess extremely different capabilities and characteristics. Some are comparatively harmless, others in the highest degree virulent.

Sternberg states: "Some are pathogenic, others are not; some develop in the blood of certain animals, others will not. Different species multiply in different media, and are destroyed at different temperatures. A nutrient medium which has been exhausted for one micrococcus may not be exhausted for another."

Cheyne describes and figures micrococci developing in wounds in large numbers without causing any serious injury. These varieties, when injected into the bodies of animals, produce entirely different results. Some develop and cause local abscesses, or a rapid and fatal blood-poisoning, while other specimens scarcely produce even any local suppuration. The inflammation and subsequent blood changes are usually far more active in the pus from open wounds than from acute abscesses.

According to Ogston the grouping of the micrococci seems to modify the result, and the chain form rarely if ever passes into that called zoöglea or masses. In the erysipelatous type, affecting the lymphatics, the chain form predominates, while in suppurative inflammation in the tissues the forms are grouped.

Fehleisen, of Berlin, published last year the result of his studies upon erysipelas and demonstrated the active factorage of the form of micrococci developing in chains in erysipelas. He not only examined them during life, but he cultivated them and with equal success inoculated the cultures, producing the disease in its typical forms in man and animals. I have cultivated the micrococcus of erysipelas from several sources. It reproduces in marvellous numbers with extreme rapidity. My inoculation experiments failed, but they have been too limited to be of any practical value.

The researches of Koch, Pasteur, Ogston, Cheyne, Sternberg, Klebs, and others scarcely less known, can only be referred to, but all more or less clearly point to the demonstration that there are different varieties of micrococci, not distinguishable in form, possessing widely different characteristics. The origin of the micro-organisms found in certain locations presents a problem of very difficult solution.

A few months since, a woman in excellent general health felt something, as she expressed it, "give away in the bowels." Peritonitis rapidly developed and death supervened in forty hours. The autopsy showed an ovarian cyst, not larger than an egg, partially empty. There were several pints of a slightly opalescent, flocculent serum in the abdominal cavity. The fluid was swarming with a large bacillus which multiplied with extraordinary rapidity in culture tubes. This bacillus was also found in the contents of the cyst. The cyst was evidently an old one, with a wall thick and friable.

Only a few weeks since, an ovariotomy furnished this interesting history: I removed a compound cyst with multiple adhesions. The cysts were thin-walled and several were broken in the removal. The cleansing of the peritonæum was made with care by sponges moistened with 1–1000 bichloride of mercury. Examination of the urine previous to operation gave no evidence of renal disease. Albumen with casts appeared in the urine at the close of the second day. Suppression of urine followed and death ensued between the third and fourth days. At autopsy there was no evidence of peritonitis, only a very little reddish serum in retro-uterine pouch, which contained active micrococci. The kidney was in a state of acute parenchymatous nephritis and the capillaries were filled with masses of micrococci. The tumor had been preserved in a 1–1000 solution of bichloride of mercury and in a number of the unopened smaller cysts were numerous micrococci.

The inferential evidence that the patient's death was due to infection from this source appears very strong.

Dr. Drysdale, of Philadelphia, who has very probably studied the morphological conditions of ovarian fluid more carefully than any other, writes me, "he has no recollection of finding micro-organisms in ovarian fluid uncontaminated by atmospheric exposure." It is equally difficult to explain the origin of the micrococcus of pus uniformly found in acute abscesses where the integuments covering them are still unbroken. The evidence is demonstrative that the blood of healthy animals does not contain micro-organisms. In a series of abscesses, eighty-two in number, examined by Ogston with due care, no organisms were found in thirteen purely chronic. In four subacute and sixty-five acute abscesses micro-organisms were found. They were in chains, zoöglea masses, and in groups of three or four.

I have more ordinarily found them in short chains, twos or fours, or groups of three or four, rather than in zoöglea masses. It is not known if the forms presented are of significance, very probably only showing the forms of growth by subdivision.

Although much remains to be studied and settled beyond dispute, the proof, that micrococci are the essential cause of suppuration, is rendered very strong by the results of inoculation, by which it has been shown that pus devoid of micro-organisms, for example, that subjected to heat or an efficient germicide, or the pus from a chronic abscess, is innocuous when injected into the tissue of animals, while pus containing micrococci, even in minute doses of a minim or more, invariably occasions well-marked disease. Interesting as is the subject we must not pursue this line of inquiry farther, simply stating that experimental proof

is constantly accumulating to show that the inflammatory and other changes which ensue in wounds, producing often the most serious and dangerous consequences, are with few exceptions the result of the vital activity of new organisms.

The result of the observations and experiments of Ogston has led him to conclude that septicæmia, pyæmia, and septic pyæmia are one and the same disease, and that their sole and invariable cause is micrococcal poisoning.

Belfield, in his interesting lectures given last year in New York city, sums up the question as follows: "A review of the evidence already considered shows, then, that infectious diseases, identical in clinical and anatomical appearances with the various forms denominated septicæmia in man, have been induced in the mouse and rabbit by inoculation with animal tissues in various stages of putrefaction; that the resulting infection is just as certain if the putrid substances be previously boiled and thereby deprived of living organisms. On the other hand, it is certain that *per se* innocuous culture fluids, infusions of beef, etc., acquire after inoculation with minute quantities of infected blood or tissue, the same septic properties, provided such blood or tissue contain living bacteria; it is further certain that this multiplication of the septic substance in such liquid is a concomitant of the vital action of the organisms therein contained; it is further demonstrated that these organisms can and do not alone multiply in the septic material, but, when isolated by successive cultures from all the accompanying animal tissues, induce independently fatal infectious diseases. The same principle, vital activity of bacteria, pervades all these phenomena; for the artificial induction of septic diseases has been, in all these experiments, originally accomplished by the incorporation into the animal of putrid tissues, with or without bacteria. Now, since putrefaction must be regarded, in the present state of our knowledge, as impossible without the presence of these organisms, it is evident that sepsis, putrid infection, was in every case due, directly or indirectly, to the action of bacteria; since even the boiled substances used by Panum and Rosenberger, and the sepsin obtained from rotten yeast by Bergmann and Schneideberg, had acquired their septic properties through putrefaction; *i. e.*, through the action of bacteria. Hence we are logically driven by all this work, to the belief that septicæmia implies the introduction into the animal, either of living bacteria, or of a substance which has acquired noxious properties through previous vital activity of these organisms."

The most valuable of recent contributions upon the relation of micrococcci to wounds, abscesses, and septic processes, is the report to the Scientific Grants Committee by W. Watson Cheyne and published in the British *Medical Journal* during September and October, 1884. I should do the subject injustice without giving briefly his conclusions:

1. "There are various kinds of micrococci found in wounds treated aseptically, differing markedly from each other in their effects on animals. They agree in growing best at the temperature of the body, and in causing acidity and sweaty smell in the fluids in which they grow. The experiments show that cultivations may be carried on in fluids with accuracy, provided the precautions mentioned be observed.

2. The micrococci tested in these experiments grew best in materials exposed to oxygen gas. They grew only with difficulty in the absence of oxygen. Eggs were not good pabulum.

3. Their effect on animals was not altered by growth with or without oxygen.

4. The effects of these micrococci on rabbits and man were not similar, some of the most virulent forms for rabbits causing no deleterious effect in wounds in man.

5. The kidney is apparently an important excreting organ for organisms.

6. Organisms not capable of growing in the blood may yet cause serious effects by growing in the excretory canals. This may explain some cases of pyelitis.

7. Where an organism is not markedly pathogenic, it may be necessary to introduce a large quantity before morbid changes are set up.

8. Supuration is not always due to micrococci, it may be caused by chemical irritants, such as croton oil.

9. Micrococci are always present in acute abscesses, and are probably the cause of them.

10. In some cases, the micrococci are the primary cause of inflammation and suppuration, as in pyæmic abscesses; generally, however, they begin to act after inflammation has been previously induced.

11. This inflammation may be caused by an injury, by the absorption of chemically irritating substances from wounds, by cold, etc.

12. There are several different kinds of micrococci associated with suppuration.

13. Micrococci cause suppuration by the production of a chemically irritating substance which, if applied to the tissues in a concentrated form, causes necrosis of the tissue, but if more dilute, causes inflammation and suppuration.

14. The conditions in wounds and abscesses are not the same, inasmuch as in the former there is opportunity for mechanical and chemical irritants to work.

15. There is no reason for denying the existence of "antiseptic suppuration."

16. Tension may also cause suppuration, but it is perhaps most frequently aided by the growth of micrococci. These organisms need not be of a very virulent kind. It is also probable that the products of inflammation are themselves irritating and capable of exciting or keeping up inflammation.

17. The micro-organisms of septicæmia, of pyæmia, and erysipelas, are different from one another and from those of abscesses. In erysipelas, the micrococci grow in the lymphatic spaces. In pyæmia, they grow in the blood to form colonies and emboli. In septicæmia, they may only grow locally, the symptoms being due to the absorption of their ptomaines; or if they grow in the blood they do not form colonies and emboli. Septicæmia may also be due to other organisms besides micrococci.

18. There are no facts to support the view that it is the same micrococcus which, under different conditions, causes these various diseases.

The experiments of conversion of innocent into malignant forms, and *vice versa*, are unreliable.

In a previous contribution, "Upon the best Methods of Wound Treatment," I endeavored to show that the best methods were those based upon a broad, comprehensive knowledge of a scientific character, including such factorage as we have here under discussion, and that the too commonly held ideas of antiseptic surgery, as consisting of carbolic acid applied as spray or in dressing, were not only superficial and misleading, but distinctly incorrect and injurious. Such imperfect knowledge of any scientific truths must have its fruitage only in evil, leading to a distrust in methods, at the best only half understood, and the results obtained, where protection in wounds has not been secured, are falsely reported in proof that antiseptic surgery is only the fashion of the hour, an exploded theory which should be relegated to the long list of isms and pathies which have for so long justly placed our profession in derision.

A CASE OF HEMIPLEGIA.

RECOVERY—DEATH NEARLY FOUR YEARS LATER FROM ANEURISM JUST ABOVE THE ARCH OF THE AORTA—AUTOPSY REVEALS THE SITE OF THE OLD LESION IN THE MIDDLE OF THE LEFT HALF OF THE CORPUS-CALLOSUM.

BY AUGUSTUS P. CLARKE, M.D., CAMBRIDGE, MASS.

Read before the Cambridge Society for Medical Improvement.

I was called January 26, 1879, to attend J. T., (colored) aged 64 years. He had been a slave in Virginia, but escaped when quite a young man. His health had always been good; he was a laborer; he was married many years ago, but his wife had had no children by him. He could not remember of ever having been sick, but was a very hard-working man, often engaging in heavy work such as he obtained at wharfs. He was also engaged often in moving furniture. For the most part he was accustomed to walk two and three miles to and from his work instead of riding, and this practice he continued daily.

When first called (January 26, 1879), I learned that the patient that morning arose early and had been to a baker's shop about a mile from his house. On his return he went into his basement for coal, and there was heard to fall upon the floor. His wife quickly descended, and there found him in a "fit," snoring and breathing heavily, and he was unconscious. I was immediately summoned, and I reached his house before 10 A. M. Patient was in bed, still unconscious, and the right pupil very much contracted (small), while the left one was largely dilated. The muscles of the face, throat and neck of the right side were affected. Deglutition was somewhat difficult, that is, in attempting to swallow water or other liquids. There was preternatural heat about the head. There was some irregularity—or some tumultuous action in the upper part of the chest in front, though no distinct murmur or souffle was there observed in connection with the heart's sounds. Pulse full and somewhat increased in frequency, and both at the wrists were alike. Temperature did not vary much from normal. The patient had vomited after he was first taken, although for the most part insensible. The patient remained unconscious the greater part of that day, but gradually returned to consciousness. The right arm and leg, as well as the right side of the face, were hemiplegic.

The right leg and arm at first were completely useless. The patient was kept under observation until March 11 following, when he was able to go about with the aid of a cane, although the right side remained affected for quite a while. The leg, as is usual in such cases, recovered much sooner than the arm. The arm, however, the following summer greatly improved. He became anxious for something to do, so he had a small store built on his ground near his house, where he sold small articles, such as fruit, candies and some groceries. After a year or so he had so far recovered the use of his arm and leg as to be able to attend to his regular work as laborer or jobber about wharfs and stores. During the past year he had been very well, often walking in and out of Boston as heretofore, and being about all day at work, returning late in the afternoon or evening, not complaining but seeming to be in good health, except the difficulty in his chest; sometimes urgent breathing, shortness of breath, but he was able to lie in bed, but was obliged to lie upon his left side altogether. During cold weather he suffered considerably from coldness of his arm, and occasionally there was numbness of his right leg. These symptoms never prevented him from attending to his regular duties connected with his occupation. Friday, October 6, 1882, he had been engaged in removing heavy goods, such as large boxes and a stove, from an apothecary's store; he had lifted many boxes and other heavy weights into an express wagon. He then ate his dinner, which he carried with him. Soon after, as he began to work again, he was noticed to fall and become unconscious. A bucket of cold water was dashed upon his head and face; he then vomited what was in his stomach. He was immediately convulsed. Some stimulant was given him, which he swallowed or was poured into him, but the amount given I learned was not large. I might here say that the patient was always a temperate man, and was averse to stimulants of all sorts. He was immediately brought home to Cambridge, where I saw him early in the afternoon. He was in great measure unconscious; was lying on his back in bed. His respiration was somewhat labored, but not distinctly stertorous. Pulse at the wrists (both) quite regular and full, but seemingly slightly compressible, or more so than normal, partaking of a vibratory or undulating character, but this feature was not a marked one. There was no real thrill nor hardness; nor was the pulse

intermittent, but were alike. Both pupils were small, the right one a little larger than the left; but as the arcus in each eye was so marked, the shade of face obstructing, and the eyelids inclined to be closed, it was not easy to observe their true condition, for in attempting this he was disturbed, then the pupils grew larger and varied. He was sensible to the touch or pinch upon the skin; he would move either arm or leg when pinched or pricked. He could not at first swallow, or only very imperfectly. The left side of his mouth and face was affected, and he inclined his head to the left. He was said to have borne some weight upon both legs when taken out of the carriage when brought home, while being brought into his house.

He frequently put his right hand to his head as if in pain, but did not move his left one. That evening he was able to swallow a little, but not much afterwards. Next morning the left side showed signs of paralysis, he did not move the left arm or leg, and at length he did not respond to the prick or pinch made on that side while sensible to that test when made on the right side. The patient soon became more comatose, his respiration stertorous, more rapid or frequent (44 per minute) and labored, and marked dullness on percussion extending over the greater part of the chest anteriorly, attended with subcrepitant râles during the inspiratory movement, resembling pneumonia in its earlier stages. Micturition occurred at regular intervals and good action of the bowels was obtained by the administration of a few drops of croton oil upon the tongue; temperature varied little from normal. The pulse at last became irregular and the patient died seventy hours after the attack commenced. Autopsy of body 24 hours after death. Present, Drs. Clarke and Holt. Found more blood than usual in vessels of scalp; considerable dark blood flowed from inside of the skull on removal of calvaria; the dura mater was more adherent than normal, but this membrane presented no unusual appearance. There was a little appearance of watery effusion of the pia-mater, or along the line of the vessels and it was there a little opaque, but otherwise this membrane was clear and transparent. The vessels at base of the brain were empty; they were somewhat atheromatous in spots. No unusual amount of fluid in the ventricles. The cerebrum was a little softer on the right side; the vessels contained not so much blood. There was a brownish-yellow spot—darker in the centre, in the middle of the left corpus callosum. This was about one-half inch in diameter. It was much harder than other parts of the corpus callosum. This spot must have been the site of the old hæmorrhage or clot which occurred January 26, 1879. The other great ganglia were normal in appearance. On opening the cavity of the chest a large bunch was discovered immediately behind the sternum. This was so soft that it was torn open on removal. This proved to be the arch of the aorta largely dilated, to the inside of which was attached a large clot, rounded, firm, and about one and one-half inches in diameter. This was split in two parts but the parts were hanging together. There was a recently formed clot extending to the vessels of the neck. Both sides of the heart contained fluid blood, and a large amount of blood flowed from the cut ends of the vessels. This organ was in every way healthy. The lungs were of a dark bluish-black color, except in front, where they were paler. Both were slightly adherent to the pleura at the top. Section showed these organs engorged with blood and very œdematous. There was a large cyst on the left kidney. The cut surface of the kidneys showed a slight granular appearance, otherwise normal. All of the other organs not described were normal. In recounting the symptoms and history of this case several important features present themselves for our consideration. First, the serious or dangerous character of the attack, which was a hemiplegia and which occurred nearly four years before his death, and from the effects of this attack it would seem that he entirely recovered were it not for the coldness and numbness of the arm and leg occasionally experienced.

On more careful inquiry into his mental condition we learned that certain peculiarities appeared that were not noticeable before; such as moroseness, a certain irritability of temper and dread of coming to want, and the like, though he made the best possible provision for his widow in case of his death. Reference to the record of the autopsy shows that the brain (middle of the left corpus callosum) had sustained a lesion from which he had not fully recovered. It is not impossible that the presence of such an aneurism may have contributed somewhat to this mental change. The next important feature in the case was the existence of so large an aneurism which gave him so little inconvenience, not materially interfering with his daily avocation until the day of the fatal attack. Another interesting phase in this case was the nature of the symptoms which characterized the last attack. This attack was accompanied by hemiplegic symptoms, though the autopsy revealed no direct lesion of the brain to account for such phenomena. Undoubtedly it was in consequence of the plugging of the vessels of the neck, and more especially above the innominata (in the right carotid artery), cutting off all supply of blood and thus starving, as it were, the brain on that side. This condition would more likely result in a man of his age, where anastomosis is not so free, from the obliteration of capillaries, and also from organic changes in the small arteries and in the arterioles. Such a condition, as Reynolds has mentioned in his System of Medicine, is more likely to occur to those advanced in age. Another interesting element in the case was, that though the right carotid was occluded, the subclavian given off from the innominata escaped the lesion, and the only evidence at either wrist (and I examined the pulse of each) was a sort of vibratory or undulating movement and the pulse a little more compressible than the normal, but, as already stated, this was not at first very marked. The localization of the old lesion which was in the middle of the left side of the corpus callosum is worthy of consideration in this case. Most authors speaking of the parts of the motor and sensory tracts where lesions from cerebral hæmorrhage induced hemiplegia, make mention

usually of the corpus striatum, thalamus opticus, crus cerebri, pons Varolii and the medulla oblongata, and occasionally the cerebellum. The corpora striata of course being the superior ganglia of the cerebrum and the thalami optici the inferior cerebral, these ganglia form part of the floor of the central cavity of the lateral ventricles, while the under surface of the corpus callosum forms the roof of those ventricles. Thus the corpus callosum is situated much higher in the hemispheres than the other parts or the ganglia mentioned, and not only above the part where the great decussation takes place, but above where the cranial nerves emerging from the sensory-motor tract have special points of decussation.

We might remark here, that there were no indications that the facial (portio dura) and the hypoglossal (ninth pair) of nerves of the left side had suffered, as there was no paralysis either of the left side of the face or of the side of the tongue, and the autopsy revealed that there was no injury of the pons or ganglia below the decussation. Another point of physiological interest is that, though the corpus callosum may not be a ganglionic centre, yet the nerve fibres after their decussation in the pons and other ganglia of a higher level, must preserve their integrity and continuity, as they enter and become so incorporated as to characterize this peculiar body before they take a radiated course towards the cerebral surface to become invested with cortical or gray substance. An interesting point in the case was that the first paralysis could not have been due to lesion of the gray or cortical substance, as the corpus callosum is composed of nerve fibres like those of the medullary substance. A few grayish streaks and thin deposits of gray substance, consisting of cell nuclei and clear vesicles deposited among the white fibres occur, however, even in this body; but these are not what are called cerebral convolutions and psycho-motor centres. Charcot has asserted that paralysis is owing to the destruction of the gray matter of the cerebral convolutions.

Ferrier, the representative authority of a long line of French and German and other very recent physiologists, has brought to our attention somewhat after the manner of Gall and others, that certain psycho-motor centres reside alone in the gray substance of the cerebral convolutions, and it is by the destruction or lesion of any one of these parts or centres that certain special paralysis or loss of function occurs. More recent experiments of Goltz upon dogs and other animals showed that even very extensive destruction of the gray substance does not result in muscular paralysis or loss of such psycho-motor function. So the question is still far from being settled. The case reported would seem rather to favor the views of Goltz than otherwise. I can not forbear to mention still another feature of interest. It is this: although the old lesion was no doubt due to cerebral hæmorrhage, the arteries of that part had not undergone any sensible atheromatous change; indeed it was only at the base of the brain that the vessels even "were somewhat atherematous in spots." This is in accordance with what Charcot, Dalton, Seguin and others have so recently pointed out, that cerebral hæmorrhage is quite as likely to occur in the young as in the old. A mere organic change in the vessels is all that is essential to produce such hæmorrhage. Finally this case, as far as it goes, proves rather the prevailing opinion regarding the decussation of nerve fibres than the doctrine taught by M. Pitres[1] that there are individual variations of the decussations of the pyramidal tract as maintained by Türck and Fleming.

A CALCAREOUS CALCULUS IN THE SUBSTANCE OF THE LIVER.

BY WILLIAM A. BYRD, M.D., QUINCY, ILLINOIS.

Read in Section of Surgery and Anatomy, American Medical Association, May, 1884.

It will not be necessary for me at this place to write of the genesis of calculi in general, but to call your attention to the fact that although frequently found in the urinary bladder, kidneys, and other portions of the body, that any concretions other than biliary calculi are so seldom found in the liver that any mention of the fact has to be sought for in works upon general pathology, and mention is then made in a vague manner, as the following from a "Manual of General Pathology" by Ernst Wagner, American Edition, p. 319: "Sometimes calcification arises in consequence of metastases. In extensive resorption of earthy salts from the bones (extended caries, numerous carcinomata of the bones, etc.), and the prevented excretion of them through the kidneys, the lime-salts, *e. g.*, are deposited in other parts of the organism; most frequently in the pyramids of the kidneys (as infarctions); more rarely in the lung tissue, in the mucous membrane of the stomach, still more rarely in that of the intestine, in the mucous membrane of the ethmoidal and sphenoidal cells, in the dura mater, liver, in the cerebral vessels. The parts affected thereby assume for the most part a pumice-stone consistency."

I will report to you a case and exhibit the specimen removed. On the 27th day of January, 1884, I was called to see Joshua A——, a laboring man aged 31, who had been sick for four months. I found him emaciated to some extent, having night sweats and rigors, a pulse of 106 of fair volume, bowels acting well and appetite excellent, skin sallow, but not discolored enough to be called jaundice. There was considerable dullness over the liver on the right side, extending to two inches below the ribs. I thought I could detect fluctuation between the ninth and tenth ribs, and having met with several abscesses in that location I passed in a narrow bistoury which gave exit to a flow of pus. I then enlarged the opening to an inch and a half in length, giving vent to nearly a pint of pus, inserted a drainage-tube, and ordered tonics.

[1] See JOURNAL OF THE AMERICAN MED. ASSOCIATION, vol. iii, p. 353.

This man had been at work where the land was low and subject to malarial influences, besides was living in a basement in a low, unhealthy part of the city. He was first taken with a chill, and was treated for malarial fever by several physicians, but did not improve. He had pain, but not of a severe type, over the region of the liver all the time. The last attendant before I saw him was a fellow claiming to be an electrical physician. He informed him that he could soon relieve him of the pain in the side with electricity, and put on a disk of copper and zinc plates over site of the greatest pain, binding it pretty firmly. The hard metal pressing against the skin caused considerable irritation and pain, and it was to see what was the matter that his wife called me in as I was passing. The suppuration continuing profuse, and being desirous of showing the senior members of the class an abscess of the liver, accompanied by ten of them I called on the patient February 19, 1884. Passing a probe gently through the opening to show the class how large the cavity of the abscess was, a hard substance was struck. I called their attention to it as probably a piece of necrosed rib, as in a case of liver abscess seen by me some three years before I removed three inches of necrosed rib from it. A forceps was passed in and the substance seized and drawn to the opening. Being too large to be extracted through the opening, I exsected an inch and a half of the tenth rib and removed the calculus I here show you. It was broken in extraction, but you see that it is a good deal larger than the end of my thumb. All the fragments were not saved on account of the impossibility of gathering them out of the blood clots. As it is it weighs 115 grains.

The wound and abscess cavity were thoroughly washed out, and the washing ordered to be repeated night and morning and the tonics continued. A probe could be passed into the liver toward the median line of the body for 5½ inches. The patient continued to improve rapidly, and the wound now does not discharge over one or two drachms of pus daily, and he has been able to row a skiff across the Mississippi river. When I first removed the mass, I wondered if it could possibly be a portion of a body of one of the vertebræ necrosed, causing ulceration and abscess of the liver; but a more careful examination proved that hypothesis untenable, as it was not bone at all, but an earthy calculus. This calculus could not have arisen in this case as described by Wagner, as the man had no necrosis of the bone, nor cancer of the bone, but had been healthy previous to the time he was first attacked with a chill. If it was the result of the drying up of an old abscess, how did it happen that an abscess so large as in its drying to produce so large a stone as this caused so little constitutional trouble? Yet such might have been the case, since I have seen some very large abscesses of the liver cause but little trouble, and for a long time elude diagnosis even in the hands of able men. It may have been caused by a thrombus in one of the arteries, causing death to the part supplied, and calcification ensued, as it often does under like circumstances elsewhere.

This case I consider unique, and finding no specimen of the kind in the vast Army Medical Museum at Washington, I shall present this one to it, that it may be studied by any one who may so desire.

P. S —The subjoined letter was received since reading the above paper, and may be of interest in connection with the rest of the report:

SURGEON GENERAL'S OFFICE,
ARMY MEDICAL MUSEUM,
WASHINGTON, D. C., May 14th, 1884.

DR. WM. A. BYRD, No. 416 Jersey St., Quincy, Ill.:

Dear Sir:—The calcareous substance removed by you from the parenchyma of the liver of J. Abner, of your city, has been analysed and found to be a calcic phosphate calculus. The specimen has been deposited in the Pathological Section of the Army Medical Museum.

I am, sir, very respectfully your ob't serv't,
By order of the Surgeon General,
W. M. MATTHEWS,
Assistant Surgeon U. S. Army.

REMARKS ON THE TREATMENT OF SYPHILIS BY HYPODERMATIC INJECTIONS OF CORROSIVE SUBLIMATE.

BY JOHN V. SHOEMAKER, A.M., M.D., PHILADELPHIA.

Read in the International Medical Congress, Section on Syphilis, August, 1884.

The hypodermatic injections of mercuric chloride for the treatment of syphilis have been received with great caution in the United States of America, notwithstanding that Dr. Lewin's book on the subject had been there translated and republished. I was one of the first to take up that treatment there, and reëncouraged by my success with it, read a paper on the subject before the meeting of the American Medical Association at St. Paul, Minn., in 1882. I analyzed there a number of cases treated in this manner by me at the Philadelphia hospital for skin diseases. I have since then practiced it freely and with even greater success than before. Syphiloderma of all descriptions were made to yield under this treatment and no disadvantages of any consequence were experienced in its course. While I have experimented with the various additions and modifications of the original Lewin's mercuric bichloride injections, I have invariably given them up in preference to the method suggested by Lewin in using a simple watery solution of corrosive sublimate. I have found, however, that the treatment could be carried very much further and larger doses readily borne, and necessary for a thorough cure, than pointed out by him. I have invariably carried daily increased injections to the point where they produced systemic effect, and have in many instances made, and found it necessary to make, injections of as much as half grain (3 centigrammes) per day. These strong injections were readily borne, providing they were sufficiently dilute, not less than half drachm (2 cubic centimetres) being employed for an injection containing half grain (3 centigrammes) of corrosive sublimate. When these daily large in-

jections were reached, the systemic effect of mercury soon became apparent as ptyalism, intestinal irritation and occasional tremor, which, however, soon subsided on ceasing with the injections, administration of potassium chlorate and occasionally the exhibition of potassium iodide, which, although acting as an adjuvant in the treatment did not serve to augment the systemic effect of the mercuric bichloride, but rather diminished its characteristic symptoms. Stimulation by milk punches, supporting treatment with ferrous iodide, were often found of great utility, but generally after twenty-four to thirty daily injections, the syphilitic symptoms had disappeared, and where the increasing dose had been persistently continued, the relapses proved a rare exception indeed. I attribute the effect of this treatment to a formation of mercuric albuminate in the cellular tissue, which, insoluble to the liquids of the organism, gradually dissolved under the peptonizing action found everywhere in the body, and thus produced a peptonized mercuric albuminate readily assimilable and eliminable in and through all parts of the body.

I am led to this inference from the fact, that otherwise toxic doses, were innocent if injected under the skin, and if it were not for local irritation I think even larger doses than I have mentioned could be borne without toxic effect. The local effect of the injections seems to bear out my views. Even large doses produce, at best, a lump which, though producing a somewhat erythematous condition of the skin, never suppurates or gives rise to deeper inflammation. I am free to say that in the thousands of injections I have so made, I have never met with an abscess or serious inflammation, though the lumps of mercuric albuminate could be detected for several days. The only precaution I observe is to use a clean gold needle, and to inject deep enough into the subcellular or connective tissue where there is plenty of free and convertible albuminous substance. Though the pain in these injections is always a disadvantage, if the solution is sufficiently dilute it will be lessened to a considerable degree, or augmented if more concentrated. No addition of any kind has in my hands lessened this, although I have with advantage administered ¼ of a grain (1½ centigrammes) of morphine sulphate into the arm hypodermatically prior to the injection of the corrosive sublimate. I regard it as necessary, to bring syphilis to an abeyance and to obviate an early relapse, to constantly increase the strength of the mercuric chloride until its constitutional symptoms, and then continuing with its use in a less vigorous manner until all symptoms have disappeared, sustaining the patient during this period with aliment, stimulants and medication. Conducted in this manner, I regard the treatment of syphilis by hypodermatic injections of corrosive sublimate, as more rapid, reliable, cleanly and less dangerous than either the internal exhibition of mercurials or iodides, or the combination of the two; or the nasty, filthy, inunction treatment, either with or without variations. In no cases have I found it necessary to use more than twenty to thirty injections, though I have frequently continued the after treatment for a month or two with decided doses of potassium iodide.

THE VALUE OF CARBOLIZED WATER FOR THE PREVENTION OF SHOCK IN LITHOLOPAXY, WITH THE RESULTS OF NINETEEN CASES.

BY EDMUND ANDREWS, M.D., LL.D.,

PROFESSOR OF CLINICAL SURGERY IN CHICAGO MEDICAL COLLEGE.

Presented to the Section of Surgery and Anatomy of American Medical Association, May, 1884.

The power of carbolic acid to benumb the sensibility of the nerves, when applied locally, is well known. For several years I have acted on this hint in the new operation of litholopaxy, with the view of blunting the impressibility of the urethral and vesical nerves, so as to make them tolerate the prolonged use of instruments without shock. For this purpose I provide a large supply of warm carbolized water, of the strength of from 1½ to 2 per cent., and use this exclusively, both to distend the bladder during the crushing of the stone and to wash out the fragments. The result is so gratifying that I cannot but attach great value to this method. I have tried it in nineteen cases, with only one death. The patients averaged nearly 60 years of age, and most of the stones were large. One patient of the age of 69 years, with a stone weighing over 2½ ounces, was under the operation for about an hour and a half. There was not even a chill following this severe procedure, and he recovered without a single dangerous symptom.

One stone in a young man was of oxalate of lime and over an inch in diameter, and so hard that the first fracture required nearly the entire strength of my hands. He recovered without difficulty, and walked about town in eight days. Other cases were equally striking.

The acid seems to act favorably by blunting the nervous susceptibility to shock, and also by leaving the bladder in a thoroughly antiseptic condition, highly favorable for preventing inflammatory action.

No. 6 Sixteenth street, Chicago.

PAINLESS INCISIONS BY INSTRUMENTS ADVANCING WITH A SLOW, IMPERCEPTIBLE MOTION.

BY EDMUND ANDREWS, M.D., LL. D.,

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At a former meeting I called the attention of the Association to the painlessness of incisions and injuries when made by circular saws, bullets and other objects moving at a rate exceeding 200 feet in a second. I also detailed some experiments with a revolving knife made to move by a powerful spring at a similar velocity.

A careful study of certain classes of surgical injuries, seems to show that pain exists only when the traumatic agent moves at a certain intermediate range of velocity, and that wounds made by objects moving on the one hand at a very high speed, or, on the other hand, at a very slow, imperceptible rate of motion, are nearly painless—often entirely so.

Practical application of this law has long been made in surgery, where a fine rubber thread is made slowly and painlessly to cut through the sphincter in cases of *fistula in ano*, or to divide the pedicle of a tumor.

I have lately commenced experiments with an instrument having an exactly measured and very slow rate of motion.

The apparatus is a thin sharp knife made to advance with a spring, whose velocity is held in check and regulated by an attached watch movement. When applied to the surface with bandages, the knife advances into the flesh of the patient with a perfectly regular motion at the rate of one inch in six hours.

The instrument having been only recently finished, I can as yet report but few experiments, but I have gone far enough to prove that at this velocity there is no clearly defined pain, but only a slight sense of uneasiness, which does not even prevent the patient from falling asleep, if he happens to be so inclined, as he was in one of my cases.

My theory is that at this slow rate the pressure of the thin advancing blade benumbs each nerve twig before it actually divides it, as slow pressure on any larger nerve deprives it of sensibility, and that the slight uneasiness before mentioned is caused by this slow pressure, and not by the actual division of the nerve fibres.

Although the painlessness obtained by high and low velocities can never entirely supersede the regular anæsthetics, yet I hope to show at a future meeting that there is a wide group of minor operations where this principle is applicable for the prevention of surgical pain, and to present instruments of practical value for this purpose.

No. 6 Sixteenth St., Chicago.

MEDICAL PROGRESS.

SURGERY.

THE SURGICAL AND ORTHOPEDIC TREATMENT OF INFANTILE PARALYSIS.—Bernard Roth, F.R.C.S., in a paper read before the British Medical Association (*British Medical Journal*), gives special attention to the use of massage and movements, both voluntary and involuntary, in the treatment of infantile paralysis after the acute stage has passed, to improve the power of those affected muscles which have still some voluntary power left; and to prevent the onset of any deformity, or, if this has already occurred, to reduce it to a minimum. The first thing done is to correct the lowering of temperature, nearly always present, of the limb or limbs. If one leg is affected, the parents should be told not to be satisfied unless it is as warm as the healthy one; quick sponging with tepid water, good rubbing and drying, and extra clothing, such as loosely knitted woolen stockings, thick cloth leggings, or, best of all, cloth leggings lined with cat skin or other fur. Baths 98–100° F. for 10–20 minutes every evening. A small barrel on end answers admirably. This to be followed by a rapid sponging of the whole body with cold water.

Massage more frequently an hour twice daily by *kneading*, a combination of grasping, and large pinching and pressure, with the two hands used alternately, one after the other, so that whatever is left of the wasted muscle is thoroughly squeezed and moved about. The skin to be protected from abrasion by lubrication with olive oil, or vaseline.

Circular friction by the thumb is done as follows: The operator's thumb-end is firmly placed on any given spot, and while considerable pressure is exerted, describes small circles, ten times from right to left, and ten times from left to right. A spot an inch higher or lower, or to one side, is then treated in the same way, and so on until every part of the muscle has been thoroughly manipulated.

Fulling acts less directly on the muscles, but rather on the whole of the tissues of the paralytic limb; it is effected by rapid to-and-fro alternate gliding of the two palms on opposite sides of the limb, which is at the same time as firmly compressed as possible. If the leg is to be "fulled," the operator begins close to the groin and gradually works his way down to the foot, moving the hands rapidly to and fro the whole time. The first time, the hands should be on the outer and inner aspect of the leg; the next, they should be placed higher on one side and lower on the other; the third time, this position is reversed; and, finally, the hands are placed posteriorly and anteriorly to the limb. After five minutes of such manipulation a dozen or two firm *strokings-down* of the leg end the rubbing.

With this the so-called Swedish exercises or medical gymnastics makes the treatment complete. The latter varies according to the part to be influenced and consists in making each muscle or group of muscles contract and then gradually relax, at first actively and then against resistance by the surgeon. With the *hip-joint* the patient lies prone and raises the leg, with the knee kept extended, from off the ground—if too weak, the hand under the knee assists the movement. Circumduction follows of the hip from right to left, and *vice versa*, ten or twelve times each way—its severity being increased by pressure of the hand against the back of the heel. *Knee-joint.* Here the patient lying supine has the knees flexed, and the legs hanging vertically over the end of the padded table on which he lies, and exercises the extensors by slowly extending one knee, when too weak the foot is supported. *Ankle-joint.* Here the leg is supported on a chair, the foot projecting; flexion, extension, adduction, abduction and circumduction are executed either voluntarily by the patient or passively by the surgeon. The *shoulder-joint.* The patient lying on the back, circumduction from before backwards, the elbow and wrist being kept extended voluntarily or by a wooden splint. To bring the scapular muscles into action, the patient, lying supine, with the arms down by the side of the trunk, or abducted at right angles to the body, or extended upwards by the side of the head, is told to resist the arms being brought forward from either of the above positions, and then voluntarily returned to the initial position against gradually yielding resistance. *Elbow-joint.* The upper arm being fixed against the table, flexion or extension is easily resisted by the

hand. Throughout all these exercises, care should be taken that, while the patient is trying to contract, he is prevented involuntarily contracting other stronger or normal muscles which should be kept at rest.

He further recommends to equalize the length of the two legs where one has become shortened, by a thicker sole on the boot of the shorter, to bandage the sound arm to the side for some hours daily, where one arm only is paralyzed, and to stop at once all unnatural modes of progression. If the toes are much deformed, stockings with toes will be found efficacious. Suspenders and never garters should be worn. Milk entering largely into the food, tepid water enemata on alternate days, and fresh air several hours daily, complete in brief, his mode of treatment.

Tetanus Produced by Hypodermic Injections. —Dr. Pietro Rossi reports in the *Gazzetta degli Ospitali* (*Lancet*) a case in which tetanus followed repeated injections of hydrochlorate of quinine. The patient was a youth, aged 18, of lymphatic temperament, affected with incipient pulmonary tuberculosis. Hydrochlorate of quinine was injected every other day, sometimes twice a day, with much constitutional benefit; but each puncture was followed by slight local irritation, with circumscribed redness and pain under pressure. These symptoms only lasted a day or two. In consequence of febrile exacerbation, the injections were repeated twice a day for three days, alternately in the arm and forearm of the same side. Each time the solution of hydrochlorate of quinine was the same in strength, bulk, and temperature. Four days after the last injection the pain increased at one of the punctures, which became red and turgid. These symptoms were allayed by repeated poultices, and no fever supervened; but the patient complained of great weakness, and of difficulty in moving the jaws when eating. Chloral was at once freely administered by the mouth; but in the course of a few hours all the symptoms of tetanus were developed—trismus, opisthotonos, and pharyngeal constriction, preventing deglutition. Chloral clysters in large doses proved unavailing. Muscular spasms of the trunk increased in frequency and violence, and death occurred suddenly, thirty hours after the appearance of the first tetanic symptoms.

Abscess of Cowper's Glands. — M. Verneuil (*Progrès Med.*) reports the case of a man, aged 62 years, who came under his care at La Pitié. For some time he had had symptoms of dysuria. These finally became very pronounced; urination became extremely painful, and the desire frequent. Examination showed a stricture of the membranous portion of the urethra. M. Verneuil diagnosed stricture of the urethra, and ordered a bath and a purgative, and next day passed a No. 3 bougie, the size being then changed every two days, until a No. 9 was passed. This was soon followed by an attack of orchitis, and this by an exudation into the tunica vaginalis, which afterwards became encysted. Dilatation of the urethra was kept up, and the patient left the hospital able to pass a No. 15. He returned in about three weeks, with a large swelling of the right side of the scrotum; this was due to abscess formation, which opened in five days. Three days afterward the patient died. The autopsy showed the bladder small and retracted, and its walls thickened. A No. 7 sound could be passed per urethram. Near the prostate a small quantity of pus was found. On dissection, a small cavity was found, filled with phlegmonous, greenish pus. It was situated at the posterior part of the urethra, and behind with the bulb of the urethra and the perineal muscles, above with the prostate, and below with the bulb. In the opinion of Verneuil and Cornil, this was a case of abscess of Cowper's glands.—*Midland Med. Miscellany.*

Removal of a Gall-Stone from the Ileum.— Dr. Wm. E. Taylor communicated to the Naval Medical Society (Proceedings) the details of a case in which the symptoms led to a diagnosis of internal strangulation of the bowel, from the presence of obstinate constipation and stercoraceous vomiting. Upon being placed under chloroform an incision from the umbilicus to the symphysis pubis opened the cavity of the abdomen, a moderate distension of the small intestines with congestion, and circumscribed patches of plastic peritonitis were found. A band surrounding the ileum was encountered, which was thickened and inflamed at that point, but as the lumen of the gut was only partially occluded, it seemed certain that it could not be the sole cause. It was divided, and following the distended gut down, a hard, pear-shaped body was found firmly impacted in the ileum at its lower portion, say, some 12 or 18 inches from its lower end. This body was situated with its small end pointing downwards, fitted as tight as a cork, not even allowing wind to pass it. It could not be moved, nor could the fingers make any impression on it by any *safe* pressure. A needle was introduced through the wall of the gut, but it was too hard to be broken. The intestine was opened by an incision an inch in length, and a pear-shaped gall-stone nearly two inches in length and one inch in diameter was removed. The incisions were closed and antiseptic dressings applied. The patient stood the operation well, and had a natural movement of the bowels at the end of 36 hours, but died of exhaustion on the fifth day after the operation without any evidences of peritonitis.

Dr. Taylor's conclusions were that there must have been an inflammation of the gall-bladder, and that adhesions had formed between it and the duodenum, followed by an ulcerative process, and, finally, a perforation of the adherent wall, and through this the stone had escaped into the intestine. An examination showed the gall-bladder to be thickened and closely adherent to the duodenum, with an opening nearly an inch in diameter leading through into the bowel, the peritoneal cavity being shut off by the adhesions. The post-mortem showed that the intestinal wound was so far healed as to prevent the escape of its contents. The wound in the abdomen had not taken on much repair.

MEDICINE.

ON THE DIFFERENT KINDS OF SUBJECTIVE AURAL SOUNDS AND THEIR TREATMENT.—Dr. Ladreit de Lacharrière has an article on this subject in the *Annales des Maladies de L' Oreille, du Larynx, etc.* He refers first to the influence which this tinnitus aurium exerts on the minds of many patients, giving melancholia to many and even causing suicide. If proper attention be given to the recital by patients of the character of these sounds, they will be found to represent a certain number of types which preserve absolutely distinct characteristics. These are sometimes vague sounds like that of the shell, or the distant roll of a drum or rumble of a carriage, which are either constant or increase at times. A second type is that of rustling, like the air stirring leaves—or more marked, like the escape of a jet of steam. A third type is that of musical sounds—approaching in character sometimes those of the preceding ones, but always having a musical tone, such as noises analogous to musical instruments, to the striking of metal plates, to the sound of bells, with the airs which one has heard constantly repeating themselves. The fourth type is that in which the subjective sensation presents pulsatile beatings, in two forms, one subjective, properly speaking, the other pseudo-subjective, in which the physician and patient both perceive the sound. These sounds have been classified as follows :

1. Sounds characteristic of occlusion of the natural passages, the auditory canal and the Eustachian tube.

2. Sounds produced by the exaggeration of the pressure in the labyrinth by the parts in the middle ear.

3. Sounds in the labyrinth produced by disturbance or lesion in the internal ear.

4. Sounds developed in the neighborhood of the ear and heard by the physician.

1. Sounds by occlusion of the natural passages, either from a temporary cause as the presence of a foreign body, or from a more durable lesion, are marked as uniform and continuous and compared to the distant roll of a drum, rumbling of a wagon, or that of the cavity of a large shell held to the ear. These are the result of internal sounds which, from the occlusion, have been reinforced to an extent rendering them appreciable by the auditory nerve.

2. Sounds produced by exaggeration of the pressure in the labyrinth, may be demonstrated in the healthy subject, by pressing on the handle of the malleus with a blunt hard substance, when a sound like that of the rustling of leaves, of the falling of a torrent or cascade, will be heard. These sounds are in no ways musical, and their cause lies in the exaggerated pressure upon the fenestra ovalis, as when a foreign body presses against the handle of the malleus, or when complete occlusion of the Eustachian tube provokes a degeneration of the membrana tympani, and causes a modification in the position of the chain of bones. This is observed in hyperæmia with retraction of these bones; in shortening of the tendon of the tensor tympani, as seen in median otitis with œdema of the mucous membrane of the tympanum, in certain catarrhal affections of the same region, in the hyperæmia present in serious cases of fever, and where the irritation of the pharyngeal mucous membrane is propagated to the tympanum. These sounds may be permanent, if tympanic adhesions or ankylosis of the bones occur; they may be intermittent if produced by spasms of the muscle, or by temporary hyperæmia.

3. Slight or serious affections of the labyrinth, transitory or permanent, accompanied by subjective sounds, whilst the auditory nerve has not lost all sensibility. These sounds are variable, but all partake of a musical character, that is to say they have a sonority which can be represented by a musical note. The most common sound is that comparable to the whistle of a locomotive. When non-musical sounds are heard at the same time, there are certainly multiple locations of modifications of the organ of hearing. These sounds affect patients most markedly, they may even give rise to thoughts of suicide, they are analogous to the sounds produced by stringed instruments, such as the harp and the violin detonations, bell ringing, percussion of metallic instruments, the singing of birds, etc. It is impossible from our present imperfect knowledge of the physiology and pathological anatomy of the internal ear, for us to class all of these various sounds with their corresponding lesions, but the nature of the sounds frequently enables us to decide what is the nature of the affection. We know, for example, that congestion of the labyrinth due to a febrile condition like typhoid fever, or to a neurosis like migraine, may give rise to pulsatile sounds isochronous with the beats of the pulse, and that these characters always belong to vascular developments of a varicose nature. In hæmorrhage of the labyrinth, the sounds become very violent and painful. In chronic labyrinthic otitis the noises become incessant. The other lesions that are most frequent are fatty, fibrous or amyloid degeneration of the auditory nerve, hypertrophy of the labyrinthine membrane, and traces of a chronic exudative inflammation with a production of calcareous salts and pigmentary deposits.

These sounds are sometimes produced by such external causes as the discharge of a gun, or the production of some lively emotion—as in the case of a woman who awoke to see her child's cradle in flames, a nervous affection ensued which was cured in the course of eighteen months, but the sound of the crackling of the flames still remained. It is evident that the sounds which result from an excitation of the auditory nerve vary in intensity according to the general and moral condition of the patients, to their surroundings, and to their little excesses. An excitability of the nerves causes sometimes an increase in the sounds when the eyelids, the temples and the cheeks are touched—particularly during the process of shaving.

Schwartz was among the first to recognize the relations between these sounds and certain forms of mental disease characterized by hallucinations of hearing. He, with Kopp, in 1869 examined 97 cases of insanity; 41 were troubled with ear affections, that is subjective sounds and acoustic illusions or

hallucinations; 26 were affected by noises without deafness—among them 7 had hyperæmia of the handle of the malleus, 6 ceruminous collections, in only 2 did the noises cease with the removal of the condition, but the hallucinations persisted; in 7 there were noises without hallucinations. Of those remaining 18 had hallucinations without noises, and 22 presented none of these symptoms.

The noises which ensue upon the administration of sulphate of quinine and salicylate of sodium are probably due to congestion of the labyrinth.

Besides these subjective sounds which have been enumerated, there are others due to true sonorous manifestations in the interior of the body, such as the vascular sounds from alterations in the blood, as chlorosis and anæmia. In aneurism of the basilar artery there is often a pulsatile sound at the occiput. Rayer records a case where it was isochronous with the heart-beats; it was not possible to discover the situation of the aneurism, it seemed as if the noise had its origin in a modification of the parts to which were sent the branches of the posterior auricular artery. According to Hirtl, there exists constantly in man, between the two branches of the stapes, a capillary which passes to the promontory; might not affections of the tympanum frequently induce alterations in this vessel? M. Lacharrière has often relieved patients of pulsatile sounds by compression of the external carotid.

As to treatment, a reëstablishment of the permeability of the external auditory canal and the Eustachian tube will relieve the sounds in the first category.

Insufflation of the tympanum whether simple or with medicaments, in reëstablishing the suppleness of the organs of the middle ear, will relieve the noises due to an exaggerated pressure on the fenestra ovale. Paracentesis of the tympanum and section of the tendon of the tensor tympani may, in rebellious cases, become necessary; but it is well first to try the use internally of iodide of potassium and arsenic; of instillation in the external auditory canal of iodide of potassium, sulphate of zinc, chlorhydrate of pilocarpine, the neutral sulphate of atropia, which have, according to the character of the cases, given good results.

In labyrinthine affections, repeated revulsives applied to the mastoid apophyses, and the internal use of iodide of potassium, mercury, arsenic and aconite according to the morbid antecedents of the patient, seem often to have good effect. Large doses of sulphate of quinine may relieve the intolerable noises and vertigo, but at the expense of loss of sensibility in the auditory nerve. Finally, the application of the continuous electric current is beneficial, particularly in passive congestion from vascular atony; it excites vascular contractility and causes the blood stasis to disappear. It has been of great service, and is used by placing a pole upon each external auditory meatus, taking care to place the negative pole on the ear which is most particularly affected. The current affects all the contained parts, and when interrupted the patient experiences a shock, and sensation of light, showing the optic chiasm to be involved. No durable bad feelings or other trouble have been produced by this method. Gaiffe's battery was the one most commonly used, with chloride of silver, and the intensity of the current was never greater than 16 to 18 elements.

Weigert's Method of Staining.—Dr. Strassmann, at a recent meeting of the Berlin Medical Society, presented some sections of the spinal cord stained according to Weigert's method, which is as follows (*British Med. Jour.*): A solution of hæmatoxylin is prepared with water and alcohol; the sections are kept immersed in it during an hour, and the temperature is maintained between 40° and 50° Cent., 104° and 122° F. They are then removed from the solution, washed and placed for three hours in a 2 per cent. alkaline solution, or in one of potassium ferrocyanide. Afterward they are submitted to the influence of alcohol, xylol, and Canadian balsam, as in the usual method. In sections thus prepared, nerve fibres with a myeline sheath are stained blue, the neuroglia pale yellow, and the ganglia cells brown. This method throws into relief the nerve fibres with a myeline sheath. Strassmann presented other preparations which brought out clearly the structural change in the spinal cord in a case of tabes dorsalis recently studied and described by Lissauer and Weigert. In sections of the cord, in a case of secondary degeneration following caries of the vertebræ, Clarke's columns are manifest. In their normal condition they present the aspect of brown rings brought out in strong relief on a light background; close to them a groundwork of fibrillæ, which are more closely packed than in the posterior columns. The ganglia cells are imprisoned in the meshes of this network. In the preparation of tabes dorsalis, Clarke's columns appear as light rings against a dark background; microscopic examination shows that a large quantity of nerve fibres with a myeline sheath have disappeared. The same structural change is found in the histological preparations when this new method is adopted.

Disinfecting the Sputa of Phthisis.—Dr. J. Sormani, Professor of Hygiene at the University of Pavia, gave some interesting details at the Hygienic Congress of Hague concerning experiments made this year on 150 guinea-pigs with the sputa from phthisis. The object in each case was to ascertain what chemical or other methods would neutralize the bacillus, which it was previouly ascertained existed in large numbers in the sputa. The results of these experiments were summarized in the following manner. (*Lancet*):

1. The bacilli of tuberculosis were generally very difficult to destroy. Dryness, exposure to oxygen, putrefaction, and most disinfectants failed to produce any effect. 2. A temperature of 100° C. only killed the bacilli after at least five minutes of ebullition. 3. The artificial digestion of bacilli showed that they were the last of all living organisms to be destroyed by the gastric juices or chloridric acid. A very active digestion is necessary to kill this microbe. A healthy man may destroy the bacilli in his stomach,

but an infant or an adult with his digestive faculties impaired would easily allow the germ to pass the stomach intact, and retain its virulence in the intestinal tube. This determined enteric ulcerations, etc. 4. The bacillus of tuberculosis can be preserved intact for a whole year when mixed with water. It is probable, though not proved, that it has retained its virulence during that time. Thus, drinking water may become the means of propagating tuberculosis. It is probable that contaminated linen retains its virulence for five or six months. 5. Alcohol does not destroy the germ, and hard drinkers often suffer from tuberculosis. 6. Cod-liver oil, ozone, oxygenated preparations, and other similar remedies have no effect in killing the bacillus, nor are benzoate of soda, salicylate of soda, sulphate of zinc and carbolic acid, iodide of silver, bromide, camphor, etc., of much greater use. They injure, perhaps, but do not absolutely destroy the bacillus, at least not in the doses that can be taken without danger. 7. A more decisive action may be attributed to creasote, eucalyptol, pure carbolic acid, the naphthols, and bichloride of mercury. 8. For disinfecting spittoons, carbolic acid solution at five per cent. is thought sufficient, and Dr. Sormani asserts that the breath never contains any bacillus. He also suggested that essences of turpentine or eucalyptol should be diffused in houses as an agent for the destruction of this special germ.

NOTE ON A CASE OF CHYLIFORM EFFUSION OF THE PERITONÆUM.—Dr. Maurice Letulle, in the *Revue de Médicine*, gives a case of chyliform ascites in a child eight years of age with a mitral affection of rheumatic origin. Cardiac cachexia. Asystolic. Enormous liver. Anasarca; double hydrothorax. Paracentesis of the abdomen gives issue to two quarts of a milky fluid. The microscope showed this to contain an enormous quantity of emulsionized fat, some red globules and leucocytes. Dr. Letulle argues that the term chyliform ascites is not proper as applied to this condition and concludes:

1. That all cases of chyliform ascites to the present time which were submitted to post-mortem examination, are cases of chronic tuberculous, cancerous or neo-membranous peritonitis.

2. The presence of chronic inflammatory lesions, represents one of the most constant elements in the genesis of peritonitis and pleurisy with chyliform effusion.

3. That the granulo-fatty change of the effused inflammatory products (fibrine and leucocytes) suffices, probably, for the composition of the whole of the emulsionized fat suspended in the pleural or peritoneal serum.

PURULENT INFECTION OF PUERPERAL ORIGIN IN MAN.—Drs. Gaucher and Bourrier give a case in the *Revue de Médecine*, of a man 30 years of age, a rubber by profession, whose wife was confined by a midwife July 5, had fever and died of puerperal disease July 9. This man, the patient, had tended his wife until her confinement, when he lost his appetite, was fatigued, febrile, and had general malaise July 8; pain, redness, and swelling in the left forearm, and posterior portion of the left thigh, chills and sweats. July 10, he entered the hospital with a temperature of about 103.0°, subicteric facies, yellow conjunctivæ, frequent respiration, painful cough with expectoration of yellowish viscid material, and evidences of pulmonary congestion. Abdomen not tympanitic, gurgling on pressure in the right iliac fossa, stools normal, enlargement of liver, tumefaction of spleen, albuminuria. He remained in the hospital under treatment until Aug. 25, when he was discharged as cured. During that time an abscess formed in the left forearm which was opened July 16. An inflammation set in on the left leg from below the knee to the ankle. An abscess also set in on the right leg just below the knee, which was opened July 20. The right thigh and the left leg had also to be relieved of pus a little later on.

These observers consider that this case represents puerperal fever in man. This man after attending his wife who dies of puerperal fever, is affected by an infectious disease, characterized by chills, fever, albuminuria, tumefaction of the liver and hémapheic icterus, tumefaction of the spleen, pulmonary congestion and multiple suppurative angeioleucitis. No other cause for infection could be assigned.

At the Annual Meeting of the American Academy of Medicine, in Baltimore, held October 28 and 29, 1884, Dr. Albert L. Gihon, of U. S. Navy, was elected President for the ensuing year.

TEXT-BOOK OF MEDICAL JURISPRUDENCE AND TOXICOLOGY. By JOHN J. REESE, M.D., Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania; Vice-President of the Medical Jurisprudence Society of Philadelphia; Physician to St. Joseph's Hospital; Member of the College of Physicians of Philadelphia; Corresponding Member of the New York Medico-Legal Society. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut street. 1884.

This new work contains 606 fair-sized octavo pages, and is published in good style. The type is plain, and the paper and binding good. The author has been well known as an eminent teacher of the subjects embraced in this volume, and is well qualified, both by scientific attainments and practical experience, for the performance of such a task as he has just completed.

In looking through the work rather hastily, we are satisfied that the topics usually included under the head of Medical Jurisprudence or Forensic Medicine, are well arranged, a fair relative importance given to each, and the whole treated in that clear and concise manner which admirably adapts it to the needs of students both of Law and Medicine. While for detailed references it cannot supersede the more extended works of Casper, Beck, Taylor, Wharton and Stillé, Tardien, and others, yet as a text-book for classes in schools of Medicine and Law it will at once take the first place on the list. Price in cloth $4, in sheep $5.

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, SEPTEMBER 1, 1884.

AMERICAN PUBLIC HEALTH ASSOCIATION, TWELFTH ANNUAL MEETING.—Last week we gave a summary of the doings of this important organization during the first day of its session recently in St. Louis.

The second day was occupied chiefly with the reading and discussion of the following papers:

Dr. S. O. Richey, of Washington, presented a paper on "The Hygiene of the Eye-Sight of School Children," in which he urged the importance of subjecting every child before admission to any school, to a medical examination of the eyes, first for the purpose of excluding such as might be affected with contagious diseases of those organs; and second, for the purpose of securing better adjustments of the amount of work required, to the capacity of the child for doing it without injury.

Prof. Charles E. Munroe, of the United States Naval Academy, at Annapolis, furnished a paper on "Cotton Seed Oil as a Food;" in which he claimed that the oil was a perfectly wholesome and proper article of food; and would be of much value to the people, if the prejudices against it could be so far overcome that it might be sold in the market under its own name freely.

The next three papers related to school hygiene. One of them was in the form of a report from the Committee on School Hygiene, presented by Prof. D. A. Sargent, of Harvard University. The practical facts presented in this report were obtained chiefly from an inspection of the schools and school-houses in Boston and its vicinity. It stated that all the schools visited by the Committee were defective in some one or more particulars, such as location, drainage, playgrounds, privies, or ventilation and seating arrangements.

Before submitting to the Association, however, a full report it was suggested that a more general collection of facts and data should be made from all parts of the United States. The suggestions on this subject were approved and the Committee continued with two new members added.

Another paper was by Dr. Felix Formento, of New Orleans. He reviewed the progress of the public school movement in America, and said that it was estimated that there were 9,800,000 children attending the schools. But education was of little value without school hygiene. The study of sanitary conditions had a marked influence upon the whole after life of the children, who should be taught what led to health as they were taught what led to fortune. The physical qualities should be cultivated as much as the mental qualities, and the physical development should precede the mental development. Ignorance or the neglect of hygiene in the school life of children caused many physical infirmities and deformities. The greatest attention should be paid in schools to the sitting postures of the children, to the length of the various lessons, and to the habits of the children. The teaching of calisthenics should be made compulsory in every public school, both for boys and girls, as it was important for the latter as it was for the former. It was not necessary to have a complicated and expensive apparatus. A few horizontal bars and ropes were all that were necessary. Such exercises should be continued only for a short time, and should never be allowed to exhaust or fatigue the children. Hygiene should be made a study in all schools. The children should be impressed with the importance of good health, and taught the best ways of preserving it and promoting it. Through the school children the ideas would reach the family and thus greatly benefit the whole community. He urged that there should be a system of compulsory medical and sanitary inspection in all schools. The work should be intrusted to competent and reliable men, and the cost of the inspection borne by the school boards, or the city and county authorities. The inspections should be made at least twice per month, and in addition to examining the children the inspectors should pay particular attention to the sanitary condition of the school-houses.

The third paper was by Dr. E. C. Elder, Secretary of the State Board of Health of Indiana, in which he showed the urgent need of improvements in regard especially to the location, drainage and surroundings of many of the school-houses of that State. He

claimed that the work of improvement in this line should be actively prosecuted by the State and local Boards of Health in all parts of the country.

The discussion which followed was taken part in by Dr. Raymond, of Brooklyn; Dr. Thompson, of Kentucky; Dr. Reed, of Ohio; Mr. Erastus Brooks, of New York; Dr. P. H. Bryce, of Toronto; Dr. Bell, of New York; Rev. Dr. Jacoke, of Michigan; Mr. R. Moore, of St. Louis; Mr. L. A. Smith, of Washington; Dr. Conn, of New Hampshire; Dr. Wm. Bailey, of Louisville; Dr. Early, of Indiana; Dr. Fee, of Kansas City; Dr. Devron, of New Orleans; Dr. Green, of Pennsylvania, and Dr. J. F. Hibbard, of Richmond, Ind. The discussion was mainly on the sites, ventilation, heating, lighting and sanitary arrangements of school-houses. It was contended that the health of the 7,000,000 of children in the schools of the United States made these questions of the greatest importance to the community.

Dr. V. C. Vaughan, of Ann Arbor, Mich., read a paper on Poisonous Cheese, the facts concerning which have already appeared in this journal under the head of Reports of the Michigan State Board of Health.

This was followed by an important paper by Dr. J. Cheston Morris, of Philadelphia, on the "Milk Supply of Large Cities; the Extent of Adulteration and its Consequences, and Methods of Prevention."

But little of value was added to the facts set forth in the full discussion of this subject, recently given in our columns, under the head of Proceedings of Suffolk District Medical Society of Massachusetts.

The plan of transportation recommended by Dr. Morris was the shipment of milk directly from the farmer to the consumer in quart glass jugs. The advantages of that plan were that the glass jars must necessarily be clean, and the milk free from contamination in transit, as the jars would be sealed. The customer would also get his share of the cream, and it would be to the interest of the producer to send the best article, as his reputation and connection with his customers would depend upon his so doing. The system involved more trouble to the farmer, and a consequent increased cost to the purchaser, but it was to the advantage of the purchaser to pay an increased price for a pure article. He had tried the plan in Philadelphia. It had been a pecuniary success. He therefore recommended it as one of the means by which really pure milk could be obtained, and infant mortality from inferior and adulterated milk reduced.

During the evening session of the Association, Hon. Erastus Brooks read a valuable, though somewhat desultory paper on "The Food we Eat and the Adulterations to which we Submit."

Surgeon Walter Wyman read a paper on the "Hygienic Condition of Sailors Engaged in the Coasting Trade, and especially the Hardships of the Chesapeake Oystermen." He stated that 100,000 people were engaged on Chesapeake Bay, in the oyster business, and that 300,000 people get their living directly from this industry. He stated that there were 1,000 square miles of possible bottom for oyster farming, and that it could be made to pay $1,000 per acre. The oysters are mostly gathered by dredging, and between the first of November and the following April, embracing the cold season of the year. Those immediately engaged in the dredging suffer severely from exposures to cold, wet and hard labor.

The writer closed by saying, "the life of the oysterman is far from a happy one, and advocated legislation to make it less terrible."

A paper on "Cremation" by Rev. John B. Beugless, Chaplain in the United States Navy, was then presented. It advocated cremation on sanitary grounds; the writer giving full assent to the popular germ theories, and claiming cremation as the only certain method of destroying the microbes.

The closing paper of the evening was by Hon. J. M. Keating, of Memphis, on "Ultimate Sanitation by Fire," in which he advocated the cremation of all suspected articles and sewage as well as the bodies of the dead.

For one hour before the commencement of the evening session the streets and public places were brilliantly illuminated, and the members of the Association given a free ride through the principal streets to witness the brilliancy of the display.

PAPERS FOR THE NEXT ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—At the last annual meeting of the Association, the number and character of the papers presented in the several Sections was greater and of better quality than usual, as may be seen by a glance at what has already been published in the department for original papers in this journal since the meeting in May last. This result was obtained largely through the active solicitation of the President of the Association and of the officers of the Sections. The careful reader will have noticed that the authors of many of the best papers acknowledge the influence of this solicitation in the first lines of their respective papers. We allude to this now, because it is time that the same influence

should be actively exerted in reference to the scientific and practical work that must be done to make the next meeting of the Association as interesting and valuable as the preceding one. The next meeting is to be in New Orleans, the metropolis of the South-West. The President of the Association is the representative of the South-East. If he has not already done so, let him follow the example of his illustrious predecessor, and give his personal attention and influence in aid of the officers of the several Sections to the securing from able writers in all sections of our great country a full supply of well-prepared papers on subjects belonging to every important department of medical science and art. But while we thus call upon those who occupy the places of honor to exert their influence in the direction named, we would urge those who have matter of value at their command not to wait for invitations from any source, but commence early, prepare their papers with care and completeness, and do not fail to give early notice of the title and contents of the same, to the chairman of the Committee of Arrangements, that he may have the materials for completing the programme for the next meeting at least thirty days before the time of meeting.

Medical College Endowments.—Several times we have had occasion, during the past year, to call attention to the great importance of liberal endowments to well established and properly located medical colleges. And we are now much gratified to learn that Mr. Wm. H. Vanderbilt, of New York, has donated to the College of Physicians and Surgeons of that city the munificent sum of half-a-million of dollars. If this is wisely used by the College, it will be amply sufficient to make the institution thoroughly efficient in all the departments of medical instruction. The authorities of the College, however, should not commit the too common error of spending the whole sum in new buildings and grounds, and have nothing left to sustain efficiently laboratories and workers in the more purely scientific departments of medical instruction. Mr. Vanderbilt has not only set a good example in the liberal amount donated, but also in bestowing it upon one of the oldest medical colleges in this country, and one whose trustees and faculty have been among the foremost in endeavoring to improve the general system of medical instruction. Who among those in this great city (Chicago) whose wealth is counted by millions will follow Mr. Vanderbilt's example, and donate one or two hundred thousand dollars to the medical college here, which has been the actual pioneer school in advancing and systematizing medical college education in this country. A generous and noble woman, Mrs. Murray, has recently given $15,000 to aid the Hospital for Diseases of Women and Children, which indirectly aids the Women's Medical College in this city. There are plenty of men and women of wealth in this and every other great city who could, by endowing the more exclusively scientific departments of permanent medical colleges, increase medical knowledge, and render more thorough the education of physicians, and thereby benefit, not a few sick persons who might find shelter in a particular hospital, but the sick of the whole human family, and for all coming time.

State Boards of Medical Examiners.—Under the head of State Medicine in the present number of the Journal, is an *Act*, or copy of a law prepared by a committee and endorsed by the Ohio State Medical Society at its last annual meeting, and which will be presented to the next session of the Legislature of that State for adoption as a law regulating the practice of medicine in that commonwealth. The framing and enforcement of proper laws for regulating the education of physicians and the practice of medicine, in such a way as to protect the real interests of the people, without having them liable to develop abuses and evils equal to the benefits they confer, is a work of great difficulty. To establish State Boards of Examiners, and confer on such Boards unlimited power to determine what shall constitute a proper medical education; what branches shall be taught in medical schools; and what schools shall be accepted as in good standing, is not only contrary to the genius of our governments, State and national, but is putting into the hands of a few men a power which they may wisely and honestly exercise in such a way as to elevate the standard of medical education, and thereby benefit the whole people, or they can just as readily wield it in such a way as to lower that standard, and foster both ignorance and oppression. The subject is one which has engaged our attention for nearly half a century, during which we have studied the history, progress and results of medical legislation in this country with much care. The only legitimate principle or pretext on which governments can claim the right to interfere with the choice of any person to study and practice medicine as he pleases, is the apparent necessity

of protecting the people from the injurious effects of ignorance and imposition, the need of medical knowledge on which to found the most important sanitary measures needed in every civilized community, and the need of skilled physicians and surgeons to attend to the wants of those who are serving in the army and navy as instrument of public defense. If it is assumed that these considerations are sufficient to justify government interference, by the enactment of laws for regulating the education of physicians and surgeons, and the practice of their art, then all such laws should be general and impartial in their terms and practical application. They should clearly define, first, what must constitute the minimum of general education required to qualify the student to commence the study of medicine; second, what branches shall constitute the minimum field of medicine to be studied and mastered; third, what shall be the minimum length of time that shall be devoted to the study of the branches named, and how much of it shall be spent in medical colleges and hospitals having certain specified facilities for teaching; and fourth, they should provide a State Board of competent Examiners, to determine whether the provisions of the law relating to these several particulars had been complied with, and to decide by direct examination, whether the candidate for admission or license to practice medicine, had the standard of actual qualifications which the law contemplated and the interests of the people required.

There should be no recognition by the laws, of medical sects or of different schools, nor any distinctions by the Board in the examination of students in relation to certain branches, but all should be examined alike and all required to have a full knowledge of each branch named in the law. Neither should the terms of the law nor the methods of examination by the Board, attempt any interference with the right of each candidate when licensed, to practice his profession in accordance with the dictates of his own judgment and conscience. The only legitimate object of government interference, is to secure for the people a supply of thoroughly educated medical men and women. In doing this it has no more right to make special provision for sects or parties in medicine, than in religion or law; nor is it in accordance with sound policy to debar any particular class of educated medical men from eligibility to appointment on the Boards of Examiners. If our readers will compare these views with the provisions of the proposed law in Ohio, they will readily see wherein we should regard several of those provisions as defective, and very liable to develop mischievous results.

SOCIETY PROCEEDINGS.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

OBSERVATIONS FROM THE STUDY OF ONE HUNDRED AND FORTY-TWO CASES OF HYSTERO-TRACHELORRHAPHY.

BY CHARLES MEIGS WILSON, M.D.

(*Continued from last Number.*)

Though much has been written on this subject in the past few years, I trust a description of special instruments, a summary of the histories of 142 cases will not be amiss. In view of the exhaustive treatment the subject has received in the hands of many observers, I hesitate to report my own limited experience. One hundred and four of these cases occurred in the practice of Dr. E. Wilson, two in my own, and the balance I witnessed as assistant either in hospital or private practice. I regret that circumstances prevented me from obtaining a full history in all the cases. No one should hesitate in performing the operation, or be unable to recognize the lesion. Yet very frequently gynæcologists have sent to them either for an opinion or operation cases diagnosed as eroding ulcers, fungoid vegetations, cancer, etc., which, when the patient is properly examined, prove to be cases of laceration. The touch alone is sufficient to establish the existence of the lesion. If corroborative evidence be required, the patient should be placed in the knee-chest position, and the uterus exposed with a Sims speculum. For in this position if each everted lip be grasped with a tenaculum, by gentle manipulation the natural contour of the cervix can be restored. If this simple feat can be accomplished, the diagnosis is at once established. For in malignant disease, *ulcerations* of the os, etc., this cannot be done. Reeves Jackson considers this test infallible. Formerly many cases of laceration were comprehended under the generic term ulcer. But the description of the lesion and the operation by Dr. Emmet has settled forever the "well-worn controversy which so long divided medical opinion concerning the etiology and pathology of the so-called ulceration of the cervix uteri."

Often times useless and injurious applications are made to the cervix, because the gentlemen having the medical care of the cases do not understand that the cervix is torn. The old-fashioned tubular speculum is still too frequently used. It is now generally conceded that it is useless except where *harsh* treatment is to be applied to the cervix without injury to the vagina. The tubular speculum separates the already everted lips and makes the laceration assume a more angry appearance. Thus faulty methods of examination often obscure the diagnosis. Another difficulty with many physicians is that the symptoms of which the patient complains are too apt to be regarded as the expression of some malady in which the uterus is not involved, unless, indeed, they complain of some vaginal discharge, a condition rarely absent. Again, the train of symptoms which belong to laceration belong equally to many other uterine ailments, and nothing but a carefully conducted ex-

amination can demonstrate that such is the case. The anæmias, debility and other results of laceration, like the results of many other pathological conditions of the pelvic viscera, are often treated by a course of tonics, whilst the underlying cause of all the mischief goes on with its destructive work. When a woman consults a physician, complaining of any of the more marked symptoms, such as cranial, rectal, vesical or pelvic pain, a feeling of weight about the uterus, disordered menstruation, and leucorrhœal discharge, a vaginal examination should be considered an "imperative and essential prerequisite to treatment." The best of investigators is always at hand, namely, the index finger, which, says one of the masters of gynæcic surgery, "when properly educated and used to the full extent of its capability, there are hardly any of the pathological conditions of the pelvic organs in woman which can escape its detective powers." Simpson in England, and Gardner in this country, first called attention to lacerations of the cervix. Emmet, as he himself says in his book, accidentally discovered the lesion in 1862, and devised the operation for its relief. To him belongs the credit of revolutionizing gynæcic surgery. Parturition is the chief cause of the lesion. The pressure of the child's head alone, especially if it be a large one, upon the os, may even in a normal labor be sufficient to lacerate it. If the os be rigid, or as frequently happens, be both rigid and attenuated, the danger is, of course, increased. If the longitudinal and oblique fibres of the uterus have greater contractile force than the circular fibres of the lower segment of the uterus have expansive powers, the force of the contractions o the former exerted upon the fœtal body, which rests upon and is engaged with the latter, may lacerate them owing to their non-expansion. In premature labor, the circular fibres of the os not being ready for the dilatation necessary to permit the egress of the contents of the uterus may give way, *i. e.*, there may be sufficient irritation of the uterus to expel its contents by contracting the fundus, but not enough to expand the os. Meddlesome midwifery is a prime cause. By which term I mean, the practice of trying to force back from the presenting portion of the child the margin of the os, without waiting for it to dilate properly; the desire to expedite the labor in every possible way; the premature rupture of the membranes—the physician forgetting that nature's dilator, the "bag of waters," is the best of all. Experience teaches that all labors in which the membranes have been ruptured prematurely, either accidentally or purposely, are apt to be complicated by some laceration of the obstetric canal, especially of the cervix. Unnecessary and unscientific application of the forceps, and traction made with them without a proper knowledge of the pelvic canal and outlet is another factor. That the forceps are responsible for many cases of laceration there can be no doubt. When applied high up or within the uterus, they are exceedingly apt to produce tearing of the cervix. Observations made by Dr. Mundé at the Mt. Sinai Hospital, New York, showed 119 cases of laceration in 700 women examined.

Dr. Hanks, of the Demilt Hospital, found only eight per cent troubled with laceration. The Mt. Sinai is a Jewish institution and most of its patients Hebrews, these are generally attended by midwives. The Demilt is patronized by the poor of the city generally, and the patients are mostly attended by young graduates, who frequently use the forceps. As far as these observations go they show that the forceps even in inexperienced hands do not do as much to produce laceration, as the often untimely interference of ignorant midwifes. Prof. Gross, in one of the last papers he ever wrote, spoke of the frequency with which the forceps were applied, strongly condemning this practice and very justly attributing many of the cases of laceration of the cervix to it. He formulated his views in the words, "the principal causes of laceration are precipitate labor, labor attended with rigidity of the mouth of the womb and *instrumental* labor." Dr. Fundenberg, in an article which appeared in the Pittsburg *Medical Journal*, makes use of this positive language: "I believe that the forceps, when properly applied, is a preventive of laceration of the cervix. * * * * When carefully introduced, for instance, into a rigid os, dilated only sufficiently to receive a narrow blade, the waters being discharged, it preserves the cervix by its inclined plane, from sudden impulse, and imitating the bag of waters in its wedgelike and outward action, it dilates with great and continuous power, with any desirable amount of slowness, and with very great safety." In the 142 cases seen by the writer, the forceps had been used in 49—presumably from the account of the patients at the labor from which their distress dated. Did space permit I should like to quote from other papers in reference to this question. Suffice it to say that the maladroit use of the forceps is responsible for many cases of laceration. The breech presentation is another factor, because of the necessity of rapidly delivering the head. The cervix may also be torn by the shoulders after the head has passed safely through. The injurious practice of giving large and frequent doses of ergot prior to the expulsion of the fœtus is another cause—so too are abortions. The predisposing causes include the various forms of induration, whether caused by hyperplastic deposit or malignant disease; all affections of the cervix producing tissue softening, such as epithelioma; or any condition interfering with the natural elasticity of the part, as the cicatrices of previous surgical procedures, or as happened in two of the cases the writer saw of cauterizations, and any syphilitic or strumous taint giving the uterus lack of tone. Dr. E. Wilson lays great stress on the muscular depravity, the result of a constitutional syphilitic taint, and the consequent emaciated condition of os. This muscular degeneration may be the result of many pathological conditions. For example, anæmia, malnutrition, phthisis and the like.

Again, when the uterus is in a state of constant activity, owing to frequent gestation, it is liable to lose tone, and thus pave the way for the exciting cause to light up the trouble. Women are more apt to meet with this accident at the time of their first delivery than subsequently. It occurs also more frequently in rapid labors. Dr. Emmet believes that

partial laceration takes place at the first delivery. Dr. Goodell, Dr. Pallen and Dr. Mundé all record it as being exceedingly common. In 200 women with uterine disease examined by the writer, 19 had laceration of the cervix. The lacerations may extend through any portion of either lip. The writer has found the bilateral to be the most common—the rent being greater upon the left side—and laceration through the posterior lip the rarest form. The fact that a laceration has taken place is seldom noticed at the time of its occurrence. When an examination is made at the completion of the delivery, the parts are so enlarged, soft and yielding, and the os so patulous, that it is difficult to detect a laceration. But if a tear has occurred, the woman soon begins to complain of symptoms which are well nigh pathognomonic. Shortly after she rises from her bed and resumes her ordinary household duties, she notices a more or less constant and generally increasing leucorrhœal discharge. This discharge is thick, viscid and glairy, and sometimes tinged with blood. Sometimes, though rarely, this discharge is absent, or after a time disappears. Pain is a prominent symptom. It is generally of a dull and aching character. It is frequently referred to the lumbar region. Headache is a marked symptom. There is a peculiar sense of weight about the uterus, which is increased along with the pain after exertion. This feeling is augmented when the woman assumes the erect posture. The menstrual flow is, as a rule, increased. It is profuse, longer in duration, and comes on after shorter intervals. There is generally a nasty, glairy, and sometimes semi-purulent discharge during the catamenial intermission. My own observation has taught me that there is generally an increase in duration and amount. When the laceration is recent the increase is so small that it is hardly noticed, but as a rule it increases steadily until it sometimes assumes the character of a sudden and violent uterine hæmorrhage. Patients generally suffer with a feeling of malaise. The general health soon becomes impaired. The digestive system is often the first to suffer. Sexual appetite is usually impaired, sometimes abolished, its gratification always attended with great pain. Insomnia is often present, together with other symptoms of a nervous character.

The writer has seen one case in which hystero-epilepsy was a prominent symptom. The symptoms are usually commensurate with the extent of the eversion of lining membrane of the cervical canal. This membrane when thus exposed loses its delicate epithelial coat, and it chafes against the posterior wall of the vagina. This irritates and inflames the raw surfaces. Hypostatic congestion and engorgement ensue. This prevents proper involution of the uterus and the parts remain enlarged and soft. The heavy uterus inadequately sustained by its supports falls to the floor of the pelvis, dragging the upper portion of the vagina with it. This makes the cervix look elongated when in reality it is shortened. Sometimes cicatrization takes place, and often this plug of cicatricial tissue gives rise to symptoms more distressing than when the parts remain ununited. The mental symptoms are sometimes very grave, amounting to such a degree of mental perturbation as to threaten the sanity of the patient. One of Dr. E. Wilson's patients was for some months in an insane asylum. After her cervix was restored her symptoms gradually subsided and eventually in the space of six weeks entirely disappeared. This woman was deprived of her liberty because her friends refused to have the operation done. Another woman in his practice, a subject of melancholia with uterine symptoms, came very near being spayed. After her cervix was repaired her melancholia and other symptoms vanished entirely. A very curious case of persistent salivation apparently due to laceration, at all events which was cured by restoring the cervix, is reported by Dr. Longyear in vol. xvi, No. 1, of the *American Journal of Obstetrics*. Did space permit I might cite other interesting cases. If the foregoing views in reference to lacerations are correct the indications for treatment are certainly clear. Having decided to resort to surgical means for the relief of his patient, the surgeon must consider whether the patient is in a proper state of health to operate. The same conditions which militate against other surgical procedures are equally operative in cases of trachelorrhaphy, when the uterus is bound down by adhesions or severe inflammation exists, it is dangerous to operate. One case which came under my observation nearly perished from an attack of peritonitis because forcible traction was made to draw down to the ostium vagina a uterus which was fixed and immobile, owing to adhesions the result of a former attack of peritonitis.

For operating the patient should be placed in the dorsal position with her buttocks well drawn down to the edge of the table—an assistant taking charge of each limb. The cervix is exposed with a Sims speculum, grasped with a vulsella and gently brought to the ostium vagina. The needle figure one is passed through the cervix in the median line, from above downwards, it is then armed with a stout piece of silk cord and withdrawn. A blunt-pointed tenaculum is passed up the cervical canal until it engages the cord, a loop of which is withdrawn. This loop is divided and united to each free end, thus forming two loops, the one controlling the anterior, the other the posterior lip. The margins of the tear are now freshened, care being taken to extend the line of incision beyond the angle of the rent, and to cut out any cicatricial tissue that may be present. The hæmorrhage which is never very profuse, and which by depleting the vessels of the uterus, tends to ameliorate the inflammatory conditions often present, is easily controlled by the application of hot sponges. Any one who has seen many operations must have noticed the sudden blanching and softening of the cervix due to the bleeding attending the operation. The late Prof. Gross thought that the benefit of the operation was largely due to this local depletion. I have seen the circumflex artery cut on several occasions, but it never required a ligature to control it. Care should be taken to make the posterior angle of the plug of tissue removed sufficiently acute, to allow of the proper approximation of the lips without tension in the sutures. The lower lip should be denuded

first, otherwise the hæmorrhage will obscure the field. Sufficient mucous membrane should be preserved in the centre to reform the canal. This is not always possible, and when it can not be done, a small piece of carbolized lint should be inserted to prevent union in the line of the canal. This should be removed at the end of twenty-four hours. Otherwise the canal may be occluded. This accident happened in three of the cases of Dr. E. Wilson's series, and the occlusion was overcome with some difficulty. All clots having been removed, and exact hæmostasis having been maintained for some moments, the wound is closed by inserting the needle figure two through both lips, arming it with a wire suture, withdrawing it, freeing the wire, and clamping it with a shot. The ends are then cut off close to the spot. The sutures should be removed by the tenth day—as they are difficult to get at these scissors were devised for that purpose. The vagina should be syringed twice daily with a solution of the mercuric bichloride 1-2000. A Sims speculum should be used to remove the stitches, as there is danger of tearing the freshly united surfaces apart with a bivalve. In three cases I have seen excessive bleeding, all occurring on the third day after the operations. This, however, did not seem to come from the wound, but was regarded as the result of a passive congestion of the endometrium. If the operation is successful, the relief afforded is speedy and sure, and what is more, generally permanent. The operation is simple and free from danger. It often renders sterile women capable of childbearing.

Dr. E. Wilson has confined ten women in whom he had previously performed the operation. In two there was a slight recurrence of the tears. In many cases where coitus was impossible on account of the pain and hæmorrhage it produced, the difficulty has been entirely overcome. In one case only did the operator fail to get a satisfactory result. The cervix was badly torn. It was repaired. The woman was afterwards found to have salpingitis. Though her health improved after the restoration of the cervix, she did not recover. In a future communication to the Society, I hope to show her Fallopian tubes. Allowed to run its course, the sequelæ of laceration are endless—disturbances of the catamenia, dyspareunia, ovaritis, leucorrhœa, subinvolution, grave mental disturbances, and above all epithelioma. In conclusion, gentlemen, permit me to quote the words of a distinguished gynæcologist, "these are no longer the chimeras and hobbies of the specialist, but grave and serious dangers." It is to be hoped that in time to come, a more scientific and certain knowledge of the dangers and difficulties of parturition and the means for their avoidance may enable physicians to avert the accident.

Dr. Baer inquired if the operations were done for the relief of sterility.

Dr. Wilson replied that they were for the relief of general symptoms. Ten of Dr. Ellwood Wilson's cases have since become pregnant.

Dr. Goodell remarked that he had no trouble in removing the stitches. His method was to leave the two lateral upper stitches with long shotted ends; by means of these each side of the cervix can be drawn into the field of his bivalve speculum and the stitches removed with ease.

Dr. Montgomery bore testimony to the same and to the value of the bivalve speculum over the Sims for that purpose. He had used the double thread through the cervix and had described its uses before this Society at the meeting of Oct. 6, 1881, and published in full in the *Obstetric Gazette*, January, 1882. As regards the quantity of tissue to be removed in closing a laceration, the operator must be governed by the character of the injury, and it might not be possible to have a satisfactory result where there was an anteversion of the uterus, the flexion occurring in the lower part of the cervix, the anterior lip being elongated and hypertrophied, the posterior normal or even atrophied, for in such cases it was impossible to prevent the preponderance of tissue in the enlarged lip. He could readily understand that such a uterus becoming pregnant, at the subsequent labor the long anterior lip would form a segment over the child's head, which would almost certainly result in relaceration.

In the case which Dr. Wilson cites of extensive laceration during labor, the proper treatment would have been to perform a primary operation by the immediate introduction of sutures rather than permit her to be subjected to the necessity of a secondary operation. It would be necessary to introduce the sutures much deeper, and then to make allowance for the subsequent involution.

It is not infrequent that multiple lacerations resemble epitheliomatous disease, and are accompanied by offensive discharge. He had given temporary relief in such a case by the use of chromic acid and tannin locally. The needle used in passing sutures should not be much larger than the wire that is to follow it.

Dr. Wilson questioned the propriety of primary operations on the cervix, and thought the weight of authority against it.

Dr. Montgomery remarked that the first case by Montrose Pallen was a primary operation, and was successful.

Dr. Chas. H. Thomas remarked that at the meeting of this Society held Oct. 6, 1881, he had reported a case of *Laceration of the cervix uteri simulating cauliflower excrescence*, which he had treated 18 years before. The patient was exsanguine from hæmorrhage, which had put her life in great danger. He used glycerole of tannin tampons, and at the end of two weeks she had improved immensely, and the condition finally proved to be a deep laceration with ectropion. Before the treatment she had been seen by six experienced gynæcologists, who declared the condition cancerous, and one of them refused to be convinced that it was not so, saying, within the past four years, that "it had been cancer, it was cancer, and she would die of cancer." When the case was reported, another of the physicians who had originally seen the case inquired of Dr. Thomas if he "proposed to cure uterine cancer by means of glycerole of tannin tampons?" The menopause has since been established, the uterus, examined within the past month, was found atrophied, and the former patient

has been for nearly 20 years a hard-working monthly nurse.

Dr. Goodell thinks it pardonable to make the mistake. With all his experience he had seen two cases which he could not for some time make a certain diagnosis. There was no doubt about the existence of a laceration, but whether the angry looking growths were merely cock's-comb granulations or epithelioma was not so easy to decide. They eventually proved to be the benign.

EYE SYMPTOMS AND CONDITIONS IN BRIGHT'S DISEASE.

BY WM. S. LITTLE, M.D., OF PHILADELPHIA.

Read December 19, 1883. to the Philadelphia County Medical Society.

Among 911 cases of Bright's disease reported by different observers, changes in the retina have been observed to be associated with the kidney affection in 185 of these recorded cases; these statistics show that 25 per cent. of the cases of Bright's disease have internal eye symptoms. The statistics have varied with the several observers; the lowest average exhibiting retinitis present in 11·46 per cent., the highest in 30·15 per cent. of the cases of Bright's disease. A more exact and larger average than 20 per cent. can only be derived from a study of a larger number of cases of Bright's disease with retinitis than have as yet been recorded. The known average of 20 per cent. is sufficient to stimulate observations, and enables us to include eye symptoms among the other various manifestations of the disease under consideration, as they are exhibited hy symptoms arising in other important organs and tissues of the body. The recognition of Bright's disease from lesions in the eye, in a case already diagnosed from symptoms in other organs, is not of so much importance for diagnosis, as it is a help in forming a prognosis; nor does the condition existing in the eye demand the therapeutics of special medicine.

A sufficient number of cases, however, are seen in an ophthalmic hospital, having no other symptom of Bright's disease apparent than impaired vision, which the ophthalmoscope shows is due to changes in the retina or of the nerve from disease of the kidney, or it is revealed in cases where vision is good, other ocular conditions being treated, so that in this class of cases the recognition of the lesion becomes important as a means of diagnosis.

The ophthalmic physician will diagnose Bright's disease by means of the ophthalmoscope, almost as frequently among the cases he is called to treat, as the lesion will be found to exist in cases where the eye is thus examined, for additional evidence in already diagnosed cases.

As a pathological change can be seen in the eye-ground during life, as cannot be so well viewed in other parts of the body, the observation of the lesions associated with Bright's disease, or of other diseases, as they are exhibited in the eye, is very interesting and instructive.

Externally, the puffy lower lid is the only symptom, and before Bright's time, it was the first evidence of a more general anasarca, and it was looked upon as a symptom of dropsy, before the kidney was known to be the organ producing the condition. In very rare cases exophthalmus occurs from hæmorrhage into the capsule of Tenon, due to the breaking down of the orbital vessels or an excess of serum in the orbit.

With dropsy after scarlet fever, as well as that accompanying the act of gestation and the puerperal state in women, some internal affection of the eye, imparing the vision, was known to exist, the same as was later known to be present in dropsy associated with kidney disease, from other causes, in both sexes alike.

The optic nerve is not seriously involved, though gray degeneration may exist, and numerous amyloid bodies may be seen with the microscope. The retina does not always present all the stages described; the kidney disease being amenable to treatment, the retina may not undergo any further change; where it is chronic, a like progression ensues in the retina. Marked lesions at times disappear, leaving only a slight trace. The hæmorrhagic state is more severe, the sight not only being lost, but the patient's life endangered.

During gestation the same picture exists, the optic nerve may be more seriously involved. A case recently seen, and having uræmic symptoms, being unconscious two weeks prior to the delivery of the child, it being born dead; had complete atrophy of one optic nerve with retinal lesions extensive; the other nerve partially affected and slight retinal changes, patient almost entirely blind. In another case, with convulsions, only slight changes in each eye near the fovea. In succeeding pregnancies, the conditions may arise again, producing more serious changes in the retina.

The prognosis, as far as the vision is concerned, is serious, when the region of the yellow spot is encroached upon, and yet fair vision may remain after subsidence of the disease.

Can a prognosis as to the duration of the disease or to its fatality be derived from the eye symptoms? Only in the chronic stages of the disease, when retinal hæmorrhages are extensive and repeated, the heart being diseased. Traube considered the heart the immediate cause of these retinal hæmorrhages; but they exist in cases without heart trouble, and in other diseases of the system, and in intraocular conditions. Brain symptoms soon follow in these severe types of retinitis, in chronic kidney disease a general hæmorrhagic condition being developed, or uræmia may ensue. In the acute forms of Bright's disease no prognosis of any value can be formed from the eye symptoms, though severe.

As to treatment of the eye in this disease; what renders the disease of the kidney controllable, is only of advantage to the retina; leeching may be useful if the patient is not too anæmic. For the vitreous opacities, in cases where the disease is under control and the acute condition of the eye abated, electricity is of considerable value, much more so than any plan of medication.

The microscope shows a sclerosis of the retinal fibres, the walls of the blood-vessels degenerated, fatty deposits along the fibres and in the layers of the retina, also in places a pigmentation; the choroidal vessels are implicated as well.

Uræmic amaurosis is rare, Wagner finding one case in 153 of Bright's disease. Graeffe found two cases in thirty-two cases of albuminuric retinitis; it presents no retinal change that is recognizable.

As yet we cannot answer why the retinal changes occur with disease of the kidney. Does the structure of the retina and its proximity to a highly vascular tissue account for it?

215 South 17th St.

INTERNATIONAL MEDICAL CONGRESS OF 1887.

The general committee appointed on the organization of the International Medical Congress to meet in Washington in 1887, is composed of the following members:

Dr. George C. Shattuck,.....Boston.
Dr. James R. Chadwick,..... "
Dr. Austin Flint, Sr.,.....New York.
Dr. L. A. Sayre,..... "
Dr. A. Jacobi,..... "
Dr. T. F. Rochester,.....Buffalo, N. Y.
Dr. S. Weir Mitchell,.....Philadelphia.
Dr. J. M. DaCosta,..... "
Dr. Christopher Johnston,.....Baltimore.
Dr. W. C. Van Bibber,..... "
Dr. S. C Busey,.....Washington.
Dr. R. A. Kinloch,.....Charleston.
Dr. H. F. Campbell,.....Augusta, Ga.
Dr. J. G. Thomas,.....Savannah, Ga.
Dr. T. G. Richardson.....New Orleans.
Dr. W. W. Dawson,.....Cincinnati.
Dr. D. W. Yandell,.....Louisville.
Dr. N. S. Davis,.....Chicago.
Dr. Hosmer A. Johnson,..... "
Dr. George J. Englemann,....St. Louis.
Dr. L. C. Lane,.....San Francisco.
Dr. John S. Billings,.....United States Army.
Dr. J. M. Browne,.....United States Navy.
Dr. R. P. Howard,.....Montreal, Canada.

Chairman *pro tem.*, Dr. Flint.
Secretary " " Dr. Billings.

STATE MEDICINE.

AN ACT

To Establish a Medical Board of Examiners and Licensers, and Regulating the Practice of Medicine and Surgery in the State of Ohio, and Defining the Duties and Powers of such Board.

Sec. 1. *Be it enacted by the General Assembly of the State of Ohio,* That there shall be appointed by the Governor a State Board of Medical Examiners in this State, consisting of nine reputable physicians, who shall be graduates of legal Medical Colleges, and who have practiced medicine or surgery for not less than ten years, but none of whom shall be connected in any manner with any Medical School or College; provided, that in the appointment the several systems of medical practice recognized by the three State medical societies shall be in proper proportion.

Sec. 2. Of the nine members of said Board, three shall serve, in the first instance for three years, three for four years, and three for five years. This period of service shall be determined by lot. All appointments made in said Board of Examiners, at the expiration of the several terms fixed above, shall be uniformly made for the period of five years each. All appointments shall be made, and all vacancies occurring in said Board, from whatever cause, shall be filled without delay, by the Governor, from fifteen persons nominated by each of the several State Medical Societies, (in case such nomination shall be made) of a practitioner of the system of practice that had previously been represented by the seat so vacated.

Sec. 3. The persons so appointed shall take the oath of office prescribed by the seventh Section of the fifteenth Article of the Constitution of the State, before entering upon the duties of their office, and file a certificate of their having done so with the Secretary of State.

Sec. 4. The said Board shall, on a day to be fixed by them, in every two years, elect from their own number a President and Secretary, who shall hold their offices for the term of two years, and until their successors are appointed or elected, and enter upon the duties of their offices. The said Board shall be a corporation, by the name and style of "State Board of Medical Examiners and Licensers of Ohio," and have and use a common seal, and as such corporation may sue and be sued, contract and be contracted with, plead and be impleaded, to the extent to enable it to carry out the powers conferred upon said Board by said Act. Said Board may make and adopt all necessary rules and regulations and by-laws, not inconsistent with the Constitution and laws of this State or of the United States, to enable it to perform its duties and transact its business under the provisions of this act. A majority of said Board shall constitute a quorum for the transaction of business. A meeting of the Board may be called by the President or any three members thereof.

Sec. 5. The said Medical Board shall examine all applicants for license to practice medicine or surgery in this State. They shall meet quarterly, on the second Tuesday in January, April, July and October, and at such meetings shall faithfully examine all candidates referred to them for that purpose by the President of said Board, and the Secretary shall keep a detailed report in writing of all questions and answers of each examination, together with a separate opinion of each examiner as to the qualifications and merits of the candidate in each case. The examinations shall be conducted in writing, except clinical, which may be oral; the President and Secretary of the Board shall have authority to administer oaths, and the Board to take testimony in all matters relating to its duties.

Sec. 6. Such examination shall be in hygiene, anatomy, physiology, histology, pathology, principles and practice of medicine, chemistry, surgery, obstetrics, materia medica and therapeutics, and such

other branches in the several departments of medical science as said Board may agree upon. The question forming such examination shall be the same for each class of candidates offering themselves, with the exception of principles and practice of medicine and therapeutics, in which branches the question for each candidate shall be prepared by the representative in the Board of Examiners of the system of practice to which such candidates wish to be licensed.

SEC. 7. The said reports and action of the examiners shall forever be a part of the public records of said Board.

SEC. 8. Any person, on paying $25 into the treasury of the State of Ohio, and on presenting a receipt for the same to, and applying to the Secretary of the Board for the aforesaid examination, shall receive an order addressed to the aforesaid Medical Board, instructing them to examine the candidate at the next quarterly examination, providing proof satisfactory to the President is first given, that the candidate is over 21 years of age, of good moral character, and has received a diploma issued to him or her, conferring on him or her the degree of doctor of medine, from some legally incorporated medical college held to be in good standing by said Medical Board; and should any candidate fail, he shall have the privilege of appearing again before the Board, at the next meeting, without any additional fee.

SEC. 9. The President and Secretary of said Board, after finding that seven members of said Board have voted in favor of such candidate, shall issue to him or her a license to practice medicine and surgery in the State of Ohio.

Said Medical Board may refuse to recommend a license to individuals guilty of unprofessional or dishonorable conduct, and they may revoke a license for like cause, upon a unanimous vote, after giving the accused an opportunity to be heard in his or her defense.

SEC. 10. The Medical Board shall establish rules and regulations as they may deem necessary to insure the faithful execution of this Act.

SEC. 11. On or before the first day of July, A. D. 1885, every person who is a graduate of a reputable Medical College, or legal practitioner, or has complied with Sections eight and nine of this Act, shall, before continuing or commencing to practice, register in the Probate Judge's office, in a book kept by said Judge for such purpose, where he or she practices or intends to practice medicine or surgery, his or her name, residence and place and date of birth, together with the date of his or her diploma, and by what institution granted, with his or her license to practice medicine or surgery within this State; at the same time the person registering (unless a graduate in medicine and surgery of some reputable Medical School or College, or legal practitioner practicing medicine or surgery at the time of the passage of this Act, within the State of Ohio), shall exhibit both license and diploma herein required to the Probate Judge, and all persons shall subscribe and verify by oath or affirmation, before a person duly qualified to administer oaths under the laws of this State, an affidavit containing a plain statement of all the facts as aforesaid, including his or her age, and shall file said affidavit and copy of said diploma with said Probate Judge. The person so registering shall pay to the Probate Judge one dollar, of which sum the said Probate Judge shall receive fifty cents for such registration and other duties prescribed in this Chapter, and the remaining fifty cents shall be paid over by said Judge to the Treasurer of the State of Ohio, within thirty days after its receipt, for the benefit of the Medical Board. Every graduate in medicine and surgery of any reputable medical school or legal practitioner in this State, at the time of the passage of this Act, shall register and comply with all the requirements of this Chapter, except producing a license from the State Board, and every person desiring to practice medicine or surgery after the passage of this Act, who is not a graduate in medicine or surgery of some reputable Medical School, or a legal practitioner practicing medicine or surgery in this State, at the time of its passage, must appear before the Medical Board of Examiners and obtain a license, as is provided in Sections eight and nine of this Act. Nothing in this Act shall be so construed as to prohibit medical consultation in different counties in the State, between legally qualified and registered physicians of this and any other State.

SEC. 12. A person who shall wilfully swear falsely to any statement contained in the affidavit required by Section eleven of this Act, shall be deemed guilty of and subject to conviction and punishment for perjury, and any person or persons who violate any other of the provisions of this Act, or who shall practice medicine or surgery in this State under cover of a diploma or certificate unlawfully issued and illegally obtained, or without a license, as provided for in this Act, shall be guilty of a misdemeanor, and on conviction thereof shall be punished by a fine of not less than $100 nor more than $500 for the first offense, and for each subsequent offense by a fine as aforesaid, and by imprisonment not less than thirty days nor more than one year in the county jail, or both. The fine, when collected, shall be paid to the Treasurer of the State for the benefit of the Medical Board.

SEC. 13. For the purpose of this Act, the words "practice medicine or surgery" shall mean to annex the letters M.D. to one's name, or to suggest, recommend, prescribe, direct or employ, as a matter of business, or for a fee, for the use of any person, any drug, medicine, appliance, apparatus, or other agency, whether material or not material, for the treatment, cure, relief or palliation of any real or supposed ailment or disease of mind or body, or for the treatment, cure or relief of any wound, fracture or bodily injury or infirmity, or deformity. And for the purpose of this Act, the words legal practitioner shall mean one who has been reputably engaged in the practice of medicine or surgery in this State for ten consecutive years last past, at the time of the passage of this Act.

SEC. 14. The money paid into the State Treasury under the provisions of this Chapter, shall be appropriated for and assist in defraying the expenses incurred under the provisions of this act.

SEC. 15. Nothing in this act shall apply to com-

missioned medical officers of the United States Army or Navy, or of the U. S. Marine Hospital Service, nor to any members of the house-staff of any legally incorporated hospital during their term of service as such.

SEC. 16. Annually, on or before the fifteenth day of September, every Probate Judge in the State shall furnish a certified copy of the names, address and residence, place of business, and by what authority they are permitted to practice, of all persons practicing medicine or surgery in his county, not previously reported, to the Secretary of the Medical Board, and said Secretary shall record the same in a book to be kept by him for that purpose.

SEC. 17. The Medical Board shall have the power to strike the name of any practitioner of medicine or surgery, guilty of unprofessional or dishonorable conduct, from the registry list, and to refuse to allow his name to be recorded or to practice medicine or surgery in this State, upon unanimous vote, after giving the accused an opportunity to be heard in his defense.

SEC. 18. The Secretary shall receive a salary to be fixed by the Board. The other members of said Board shall each receive $10 per day and necessary expenses, for each day actually and necessarily employed by them in the discharge of the duties of their office. The State Board shall audit all bills made out in due form and verified by the member rendering the service or incurring the expense of traveling in the performance of the duties of his office. Such bills, when approved by the Governor, shall be paid out of the State Treasury.

SEC. 19. The Governor shall remove any member of the Board for unprofessional or dishonorable conduct, upon the recommendation of two-thirds vote of the Board.

SEC. 20. The sum of $1,000 per annum, or so much thereof as may be deemed necessary by the Board, is hereby appropriated to meet the necessary and legitimate expenses of the Board, should the fund raised by the provisions of this act not be sufficient to meet such expenses.

SEC. 21. No part of this act shall be considered as applying to those practicing dental surgery or dentistry.

SEC. 22. The Adjutant-General shall procure suitable room for the use of the Board at Columbus.

SEC. 23. All other acts or parts of acts inconsistent with this act are hereby repealed.

SEC. 24. This act shall take effect July 1, A. D. 1885.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

LONDON, October, 1884.

The results of the conference of the Red Cross Associations held at Geneva have, according to Surgeon-General Longmore, given satisfaction to the members who attended it. Amongst the matters discussed was the employment of the electric light for searching for the dead and wounded on the battle field. Baron Mundy, basing his remarks upon the experiments made at Wichen in October, 1883, and at Aldershot in July last, as well as those undertaken near Geneva during the conference—which have confirmed the practicability of clearing the field of the wounded during the night following a great battle, and burying the dead after establishing their identity, expressed the hope that in future wars the electric light would be employed in all cases in which military commanders permitted its use. The questions "Shall the Associations acquire during peace the articles and apparatus required in war," and "Is it necessary that the drawings and documents referring to ambulance material should be exchanged between the central committees?" was postponed to the next conference which is to take place in two years, with a view of its being examined by the central committees, as well as one dealing with the principles which should be observed in reports and communications of the central committees.

The influence of emigration in spreading disease has lately been under the careful attention of the Local Government Board. The report of their medical officer, Dr. Blaxall, is of a very exhaustive character. His inquiries took place during the year 1882, the immediate occasion of them being the representations from the United States to the effect that small-pox was believed to have been imported into that country by immigrants from Europe. The question having thus been opened up proved to contain several points of a character at once important and intricate. The tremendous growth of emigration has brought with it a train of sanitary consequences, whose relation to the health of the general community has been somewhat overlooked. During the five years from 1876 to 1881 upwards of 1,300,000 emigrants left the British Isles. This, it must be remembered, they did in large batches, between whom during their period of travel the closest intercourse necessarily existed. In fact it may be said generally that emigration on a large scale is a system containing in itself every element favorable to the spread of infectious disease, the only wonder is that more cases of infection are not distinctly traceable to their movements. That this is not the case shows how much has been done by organized medical inspection. Dr. Blaxall has come to the conclusion that the amount of disease exported by emigrants from the British Isles can not be reckoned as large when the exceptional conditions of the people are taken into account. The report as a whole goes to show that there are still some very desirable improvements which are lacking. The chief of the evils which are distinctly remediable would appear to be the lack of organized relation between the shipping companies and the sanitary authorities. Nor does the system of sanitary inspection of lodgings by the shipping companies appear to be uniformly satisfactory. It appears that there are moments in the emigrant's career when he may not be directly amenable to the local sanitary authorities and when the precautions of the shipping companies are not necessarily adequate. In such cases a consolidation of power appears to be required. Another point on which there is room for

improvement seems to lie in the imperfect sanitary condition of many of the foreign lines of steamers which land immigrants on British shores. Indeed, it is in these cases Dr. Blaxall finds the greatest cause for dissatisfaction. An immense number of foreigners, chiefly Germans, Poles, Russians, Jews and Scandinavians enter England or Scotland for the purpose of reëmbarking for the United States or Canada. These transmigrants are shipped from their own country under a variety of regulations, which lead to considerable complication. The vaccination laws of Sweden only apply to children over two years of age, thus all the precautions taken against the spread of this disease at English ports may be neutralized by the importation of small-pox through the infant of some foreign transmigrant. It must be said, on the other hand, that one frequent source of infection is largely cut off which exists in the case of the ordinary British emigrant. That is the supervision of his lodging, which is arranged by the shipping companies, who have regular houses under strict supervision where the transmigrants are quartered pending the departure of the ocean steamer. In the case of the emigrant there is no such arrangement, and unless he have friends at the port whence he sails, he is usually compelled to find quarters for himself for one night at least, and it may be surmised that latent disease is frequently introduced into the emigrant ships through this cause. Prior to embarkation the emigrants are subjected to strict medical examination at the hands of officers appointed by the Board of Trade. The smallest signs of disease are looked into most minutely, and the condition of the children is particularly ascertained. So far as embarkation from the English ports is concerned, the report leaves one with the impression that autho ity is at least on the high road to perfectly satisfactory regulations. The Local Government Board state that since this inquiry several improvements have been made at more than one English port. The spread of disease in this manner is, after all, not absolutely preventable. Latent cases will of course pass the strictest scrutiny from time to time. With the terrible evidences of the cholera now before us, it is to be hoped that the Local Government Board and the Board of Trade will continue the work of practical inquiry which they have commenced.

The application of pyrogallic acid in phagedenic chancre is a new treatment, which consists in dressing the sore with an ointment of vaseline and pyrogallic acid, (four parts vaseline, one part pyrogallic acid). This form is not adapted to the treatment of superficial ulcers without deep sinuses. In the latter condition a powder consisting of pyrogallic acid and powdered starch (1–4) should be dusted into all parts of the ulceration. For general use the following formula is useful: Pyrogallic acid, 10 drachms; vaseline 4 ounces; starch, 10 drachms. The dressing must be renewed daily. At the Vienna Hospital, however, the employment of pyrogallic acid in the treatment of skin diseases was attended with fatal results, due to the deoxidizing action of the pyrogallic acid upon the blood-corpuscles. So it must be necessary to use care in its use.

Sir Prescott Hewitt takes the late Mr. Cæsar Hawkins' place as one of Her Majesty's sergeant-surgeons-in-ordinary.

One of the best collections of Wedgwood in the country—namely, that belonging to Dr. Shadford Walker, of Liverpool, the well-known oculist—will be sold at auction next March in London. Dr. Walker, over and above his professional achievements, is noted for three special tasks or hobbies—first for his china, secondly for his illuminated MSS. and thirdly, for his successful cultivation of orchids in the very heart of a smoky city.

G. O. M.

DOMESTIC CORRESPONDENCE.

BIOGRAPHICAL SKETCH OF PROFESSOR P. L. PANUM., M.D.,

President of the Eighth International Medical Congress held at Copenhagen, Denmark, 1884, in the month of August, beginning on the 10th and and ending on the 16th.

Professor Peter Ludwig Panum was born on the 19th of December, 1820, in a small town called Ronne, on the Danish island Bornholm, in the Baltic Sea, where his father was a physician.

In the year 1840 young Panum was sent to the University of Kiel, and from there went to the University of Copenhagen, where he in 1845 took his degree. As a student he already lectured with great success, and in consequence of his deep devotion to the study of the physiological branches of the science, he commanded universal attention. In 1846 when almost the whole population of the Faroe islands was suffering from the measles, Panum went thither by order of the Danish government, and during his six months' sojourn in that far away place, succeeded in gaining a reputation as a superior and remarkably energetic young man, and made several interesting discoveries in the contagious venom of the measles. Shortly after returning home he went to Berlin, but on the outbreak of the war he again returned to Copenhagen, and was appointed surgeon on board the man of war "Geiser," where he discharged his duties as a brave officer. It is characteristic that Panum never rested in his youth and wanted to be everywhere at once, to take an active part in all affairs of medical interest. When the cholera epidemic in 1850 was ravaging Denmark, he visited all the worst attacked places, and had good opportunities to study that frightful disease; the following year Panum took the Medical-Doctor degree and then went to Paris, where he studied a year under the eminent physiologist, Claude Bernard.

When he returned home he was appointed to the professorship in physiology at the University of Kiel, where he was greatly admired for his scientific endeavors and strong sense of justice, and beloved for his amiability; he was a rare conscientious teacher, and devoted to his profession. He succeeded in filling his pupils with that same enthusiasm that he himself displayed, and brought them not to work mechanically but to throw their whole souls into the

study, for he sincerely believed in the old saying that "when a thing is worth doing at all, it is worth doing well." Though he was quite a young man, he had gained a name through all the important and interesting results of his studies, and from his very youth had been renowned, honored and respected as one of the most prominent physiologists of the day. But through all his career he never once allowed himself to be carried away with his success, neither has he ever, in public or private life, made a display of his accomplishments; has always been and still remains the quiet and unassuming gentleman, the skilful physician and the sober examiner.

It was more particularly in chemical physiology that Panum from boyhood upwards took so great an interest, "the study of the phenomena of the manifestations of life," laws and causes regarding both animals and plants, and above all the human being. In order to acquire the secrets of the manifestations of life the physiologist must first thoroughly understand the building of the system and of each of the special organs, he must also have a thorough knowledge of physics, chemistry and anatomy. Panum has perfected himself in each, and all combined make him the great physiologist he is. It is a grand and noble science to which the professor has devoted his life, a science that interests the whole civilized world. The Congress at Copenhagen proved it. The professor has never once given in, but with persevering energy has always carried his investigations through; when he once has undertaken anything he is sure to do it and to succeed. His great interest in the late Congress was beyond doubt one of the main causes of its success, for he never does a thing in halves.

Sir James Paget, President of the Seventh International Medical Congress, said: We thought the London Congress grand, but this is yet grander, and the most successful ever held. It is characteristic of Panum, and shows his profound physiological interest, that although a professorship at the Copenhagen University from his youth, had been his greatest ambition, he would, when it was offered to him, accept it only on the condition that a physiological laboratory was erected there, and remained in Kiel until he received consent to build one. As leader of this institution he has had a great influence on medical science, and being a strong and hearty man, he will undoubtedly have still more in years to come, using his great faculties for the benefit of humanity.

In a few short sketches, Professor Panum is a loving husband and father, an honored and true man of science, and an amiable colleague and host. He is a member of several scientific societies, and is decorated with the Cross, "Commander of Dannebrog," etc., etc. In 1887 the Professor will visit the United States of America, and cede the presidential dignity to one of his American colleagues. When Dr. Billings, in the name of the American physicians, brought that most cordial invitation, and Washington was proposed as the place for the meeting of the Ninth International Medical Congress in 1887, and enthusiastically accepted, Professor Panum's last words were:

Au revoir, my friends. We meet again in Washington, on the other hemisphere.

To all the Physicians of the United States of America,

and especially to those who honored the Copenhagen "International Medical Congress" with their presence,

this Biography is respectfully dedicated,

by the Author,

Otto Hauberg-Knudsen.

BOOK REVIEWS.

The National Dispensatory, Containing the Natural History, Chemistry, Pharmacy, Actions, and Uses of Medicines. Including those Recognized in the Pharmacopœias of the United States, Great Britain, and Germany, with Numerous References to the French Codex. By Alfred Stille, M.D., LL.D., Professor Emeritus of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania, and John M. Maisch, Ph.D., Professor of Materia Medica and Botany of the Philadelphia College of Pharmacy. Third Edition, Thoroughly Revised, with Numerous Additions. With 311 Illustrations. Philadelphia: Henry C. Lea's Son & Co. 1884.

This ponderous volume of 1755 pages, is published in the usually good style of the well-known publishing house of Henry C. Lea's Son & Co. The two former editions have made the general merits of the work so well known that an extended notice of this edition is unnecessary.

The present edition bears all the marks of a careful and full revision, in which the latest revision of the several national pharmacopœias has been rendered available. More than 100 pages of additional matter have been added to this edition of the work, making it perhaps as complete and valuable as any work of the kind in the English language. From Jansen, McClurg & Co., Chicago.

Diseases of the Throat and Nose, by Morell Mackenzie, M.D. London: 1884. P. Blakiston, Son & Co. Philadelphia. Volume II. Diseases of the Œsophagus, Nose, and Naso-pharynx.

The first volume of this work, which appeared several years ago, is already so well known to the profession that it is unnecessary to commend the present volume.

We may merely state that it treats of the diseases of the œsophagus, nose and naso-pharynx in the same terse and lucid style which characterizes other works by the same author, and in the comprehensive manner observed in the first volume of the present work. Those who have the first volume have been anxiously waiting for the second, and physicians who are not familiar with the first, may rest assured that in this work they will find one of the most satisfactory treatises that has appeared on any special subject for many years.

E. F. I.

THE LOCK-JAW OF INFANTS (TRISMUS NASCENTIUM) OR NINE-DAY FITS, CRYING SPASMS, ETC.; ITS HISTORY, CAUSE, PREVENTION AND CURE. By G. T. HARTIGAN, M.D. Washington, D. C.: 1884. Cloth, 123 pp.

This little volume is the result of the observation and record of 49 cases of spasm in infants. The author's conclusion is that this symptom is the result of pressure caused by the displacement of either the occipital or parietal bones, and that the cure for the disorder is the replacement of these structures either by operation, manipulation, or simple attention to the position of the patient.

He demonstrates that such pressure may be mischievous or possibly fatal, but it would appear that his enthusiasm had carried him a little too far, for in the infant, irritation from many sources may produce convulsions, and certainly the histories given do not warrant the assumption that all other causes than cranial displacements can be eliminated.

Lusk states that a displacement of the occipital bone is a usual consequence of labor, and our author is again weak in the fact that he has not demonstrated by the examination of healthy children that the very slight displacements observed are abnormal.

STUDENT'S MANUAL OF ELECTRO-THERAPEUTICS. By R. W. AMIDON, A.M., M.D. New York: G. P. Putnam's Sons. 1884. Cloth, 93 pp.

The book embodies the lectures delivered in the course on therapeutics at the Woman's Medical College of the New York Infirmary. The author carries out the plan of his work so successfully that a quotation from the preface is the best possible review.

Of the use of electricity he says: "Its showiness, its instantaneous and startling physiological effects, and its name, popularly synonymous with life, have long made and will long continue to make it a fashionable remedy, a cure-all for imaginary diseases, a popular placebo, a gold mine for charlatans and symptom-treating physicians, who let their patients make the diagnosis and suggest the treatment."

In mitigation of these evils the aim of the writer has been, first, to present that amount of the subject of electro-physics necessary to the proper understanding of the construction and use of medical batteries; second, to point out the common, gross physiological effects of electricity; third, to outline the methods of electro-diagnosis; fourth, to determine the kind of electricity and its mode of application indicated in different pathological states.

SHAKESPEARE AS A PHYSICIAN. Comprising every word in any way relating to medicine, surgery or obstetrics, found in the complete works of that writer, with criticisms and comparison of the same with the medical thought of the present day. By G. PORTMAN CHESNEY, M.D. G. H. Chambers & Co. St. Louis. 1884. Cloth, 226 pages.

This volume is published in good style. To those who are familiar with the writings of Shakespeare and admire them, the book should possess much interest, as the comments and interpretations of the author are calculated to develop more fully the meaning of the text. Those who have time and a taste for looking up the curiosities of medical literature will also find much in this volume to interest them.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.
Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM OCTOBER 18, 1884, TO OCTOBER 24, 1884.

Wolverton, W. D., Major and Surgeon, granted one month's leave of absence, to take effect when his services can be spared by his post commander. (Par. 4, S. O. 211, Dept. East, Oct. 16, 1884.)

Vickery, R. S., Major and Surgeon, during temporary absence of Major J. C. McKee, Surgeon U. S. A., Middle Division of the Department, in addition to his other duties, will assume charge of the office of the Middle Division. (G. O. 34, Hdqrs Dept. Col., Oct. 8, 1884.)

Strong, Norton, First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Union, N. M. (S. O. 198, Dept. Mo., Oct. 4. 1884.)

Phillips, Jno. L., First Lieutenant and Assistant-Surgeon, transferred from Dept. of the East to Dept. of Dakota. (S. O. 245, A. G. O., Oct. 18, 1884.)

Winne, C. K., Captain and Assistant-Surgeon, in addition to his duties as Post Surgeon at Benicia Bks., will also attend the sick at Benicia Arsenal, Cal. (S. O. 122, Hdqrs Dept. Cal, Oct. 13, 1884.)

Havard, Valery, Capt. and Assistant-Surgeon, assigned to temporary duty at Fort Schuyler, N. Y. Harbor, N. Y. (Par. 2, S. O. 211, Dept. East, Oct. 16, 1884.)

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING OCTOBER 25, 1884.

Bloodgood, Delavan, promoted to the grade of Medical Director, Aug. 22, 1884.

Oberly, Aaron S., promoted to the grade of Medical Inspector, March 28, 1884.

Wells, Henry M., promoted to the grade of Medical Inspector, Aug. 22, 1884.

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ORIGINAL ARTICLES.

MALFORMATION OF THE FEMALE SEXUAL ORGANS, RESULTING FROM ARREST OF DEVELOPMENT.

BY B. BERNARD BROWNE, M.D.,

Professor of Gynæcology and Obstetrics in the Baltimore Polyclinic and Post-Graduate Medical School; Professor of Diseases of Women in the Woman's Medical College of Baltimore; Fellow of the American Gynæcological Society, etc.

Read in the Section of Obstetrics and Diseases of Women, American Medical Association, May, 1884.

We learn the functions of an organ, not only by observing the part it performs when present in the system, but also by noting the consequences of its absence.

The cases which we will consider render it evident that the excitement and increased vitality of the sexual organs by which menstruation is preceded are not dependent, as was once supposed, upon any congestion or distension of the vessels of the uterus, or upon any other change in the condition of that organ.

They also show us that the peculiar external characteristics of the female form, and the possession of sexual sensibility, are not all owing to the uterus, and are in no way connected with its presence or development.

Indeed there can be no doubt that the often quoted aphorism of Van Helmont—*propter solum uterum mulier est id quod est*—is perfectly erroneous, and that the distinguishing attributes of womanhood derive their origin not from the uterus, but from the far more important energies of the ovaries and Fallopian tubes.

As many of the abnormal and pathological conditions of the female sexual organs are the result of defective development, occurring either during the period of intra-uterine growth or at the period of puberty, and as several of the cases which I will relate in this paper are the results of such arrest, it may be well to pass briefly in review the different stages of normal development.

About the sixth week of intra-uterine growth the primary elements of the uterus, consisting of a pair of filamentous organs situated on either side of the inferior portion of the vertebral column, and between it and the Wolffian ducts, make their appearance.

These cords, which at first are solid, afterwards become perforated, and are known as Müller's ducts; out of these the Fallopian tubes, uterus and vagina are developed.

Posterior to Müller's ducts and anterior to the rectum a mass of tissue is developed, which helps to form the recto-vaginal wall above and the perinæum below.

Anteriorly Müller's ducts unite with the lower portion of the bladder, and aid in the formation of the urethra, forming the upper portion of its posterior wall.

At about the seventh week the upper portion of Müller's filaments become slightly enlarged and club-shaped; at the lower end of this enlargement they gradually coalesce, and at this point the round ligament is given off, the upper portion separates and forms the Fallopian tubes, while the lower portion forms the uterus and vagina. The point where the coalescence occurs, and where the round ligaments originate, affords a sure point of demarkation between the uterus and Fallopian tubes which in many cases is of great importance.

At about the eighth week the lower portion of the cords, which are hollow, gradually coalesce until by union they exhibit a right and left cavity separated by a septum.

The lower portion of this septum gradually disappears and the outer walls become somewhat thicker until about the fifth month, when the uterus and vagina are distinctly separate.

The upper portion of the uterus at this period is represented by two diverging horns or processes.

During the sixth and seventh months the uterus becomes more cylindriform and of greater bulk, its horns diverge less than before, and from being drawn into the substance of the uterus they seem to be disappearing.

At this period the increased bulk becomes more marked in the cervix, its walls exceeding in thickness the walls of the body of the uterus.

During the eighth and ninth months of fœtal life the disproportion between the thickness of the walls of the body and neck of the uterus continues, and the substance of the cervix considerably exceeds that of the body of the uterus.

This condition exists at the time of birth and is known as the *uterus fœtalis* or *infantilis*. The uterus has now undergone its primary development and its further growth ceases until the period of puberty, when it is to perform its normal function. A few changes, however, do take place in it during this

period, at the time of second dentition, the *palma plicata* of the body of the uterus disappears, and the bulk of the body and cervix become more equal and the organ descends somewhat in the pelvic cavity.

Cases of Amenorrhœa from Congenital Malformation. Miss J. D., age 21, of small stature and delicate physique, has never menstruated nor had any of the premonitory symptoms, the breasts were slightly developed. The external organs of generation were of the ordinary appearance, but when the labia were separated the urethral orifice which was patulous and would admit the tip of the index finger came into view, but the orifice of the vagina was closed, or rather ended in a cul-de-sac about an inch and a quarter deep. The index finger of the right hand was passed gently into the bladder and two fingers in the rectum in order to determine whether the uterus was present or not, when the anterior wall of the rectum was pushed forward by the fingers it came in contact with the finger in the bladder, only the septum being between, no uterus could be felt, in fact about the same sensation was obtained as when the finger in the vagina presses its anterior walls against the finger in the bladder, no ovaries could be detected, the girl had suffered from repeated nasal hæmorrhages, not, however, of a periodical character, she also suffered at times with severe headaches.

In this case the examination revealed the fact that the uterus was not present unless in a very rudimentary form, that although the ovaries could not be felt they were probably partially developed, and that an almost complete arrest of development had taken place in the lower portion of Müller's ducts.

Miss A. R. had suffered for four or five years with periodical headaches, accompanied by intense pain in the abdomen, had never menstruated, although she had taken medicine at various times for the purpose of bringing on her courses. Upon making an examination of the parts the external genital organs were found normal, the hymen which was thick and hard was intact, and nearly closed the vaginal orifice, a small opening only existing in the centre, on passing a sound through this opening a cavity was found beyond which contained no fluid. The hymen was cut through and a small infantile cervix was found projecting into the vagina, the uterus measured only an inch and a half in depth, more than an inch of this belonged to the cervix, the body of the uterus was very thin, and its cavity was not over a quarter of an inch in depth.

Considering this case as one of undeveloped infantile uterus where the arrest of development had taken place either just before or about the time of puberty, some means seemed called for to restore the normal nutrition of the organ and to stimulate it to perform its physiological function.

For this purpose the faradic current was used of moderate strength, the cathode to the cervix, the anode to the spine along the lumbar and sacral regions. The first application was made a few days before the expected time for the return of the periodic headaches, at which time she noticed a slight show of blood, the first she had ever seen; her headache was much diminished and she had only slight pains in the pelvic region.

Her second menstruation occurred more freely, and her general health has much improved; by the third month her menstruation was about normal and her uterus measured 2¼ inches. The application was continued once a week for three months; after the first month the cathode was passed *into the uterus.*

Miss M. T., age 19, of small figure and defective development, was brought to me by her aunt, who stated that the girl had never had her courses, but that lately she had been suffering intense pain in the head, which occurred about once a month, and was generally relieved by the occurrence of a hæmorrhage from the nose, which frequently continued for several hours. Upon examination, the uterus was found small, its cavity measuring only one inch, the cervix presenting the appearance of a small nipple projecting into the vagina, the external os was small, admitting with difficulty the smallest probe. The faradic current was used as in the preceding case and in about three months normal menstruation was restored; the girl developed, and her general health became good; the uterus enlarging to about its proper size.

Kussmaul makes the following very practical distinction between the two arrests of extra-uterine development termed *Uterus Fœtalis and Uterus Infantilis.*

The uterus fœtalis has the form of that belonging to a fœtus at full term. The body is small, six or nine lines in height, and ten to twelve in breadth; the neck, which forms the greater mass, is from 18 to 20 lines in length. The cavity of such a uterus, especially that of the body, is either wanting or very small.

In those cases, however, which we regard as *uterus infantilis* the organ, on the whole, has the form of a virgin one, but is altogether smaller; the most important anomaly is an excess of connective tissue in its walls, which renders them denser and more resisting, the mucous membrane is paler and thinner, and in many instances the rugæ of the cervical canal are imperfect.

The vaginal portion of such a uterus is either very small or entirely absent. Sometimes its presence is indicated by a wart-like prominence with a slight depression leading to the cervical canal.

Mrs. E. S., age 25, married four years; sterile; suffers from amenorrhœa and excessive pain; has her menses at the regular time, but only a few drops. Her uterus was found anteflexed, the cervix conical and indurated. This condition is a very frequent one in sterile women, and results from an arrest of development taking place at the period of puberty. According to Emmet, flexures of the cervix have their origin at this period, or shortly afterwards, by the balance being lost between the relative growth of the body and cervix.

From the earliest development of the uterus, as a rule, until pregnancy, some degree of anteversion exists. With the uterus in this position, the neck cannot be developed to its full length without forcing the cervix forward in the axis of the vagina in the di-

rection offering the least resistance. As the body of the uterus lies forward, the cervix must become bent upon itself at or near the vaginal junction, and thus the flexure is formed. This must take place or the uterus will become retroverted, the result being determined by the fullness or absence of the posterior cul-de-sac of the vagina.

When the cervix is small enough in diameter to be readily bent upon itself the flexure is formed, but if the contrary be the condition and the cul-de-sac be small, retroversion of the organ will occur. Versions of the uterus when they result from defective development have their origin most frequently in a deficient development in the shape and size of the vagina. In such instances the vagina terminates around a cervix of unusual length without forming a posterior cul-de-sac. The consequence is that the neck of the uterus being too long is necessarily crowded forward in the vagina, in the direction offering the least resistance, and retroversion follows. This result may be considered a mechanical one and due to a congenital curve or defect.

Lateral Versions are seldom congenital, but ordinarily result from shortening of the broad ligament after an attack of cellulitis.

In the two following cases of arrest of development, I had the opportunity of seeing the post-mortem results:

Case 1. A lady, aged 19, who four days previous to her death, had a profuse epistaxis lasting about 48 hours, which, taken with the fact that she had never menstruated, and that the nose bleedings were frequent, induced an examination post-mortem of the organs of generation.

The vulva was natural in formation and appearance, with the *mons veneris* and external surface of the labia major well covered with hair; no clitoris could be perceived. The vagina was a simple cul-de-sac about two inches long. It was destitute of rugæ, hymen and caruncula, and had no communication with an os uteri. The bladder and rectum were firmly adherent to each other instead of being separated by a uterus, which was searched for in vain. The bond of adhesion between the bladder and the rectum was the broad ligament occupying its usual position, of a crescent shape, and embedded in a thin horn of this crescent near the summit about one inch and a half internal to, and on the line with, the iliac fossa, was a nodular body dense in structure of the size of an apricot kernel, to which were attached a perfect ovary, Fallopian tube and round ligament. The parts adjacent to the ovaries were greatly congested. The nodular bodies referred to were what would correspond to the superior cornua of the uterus, and the non-striated muscular fibre found in a section confirmed this impression of its being uterine tissue. In this case the patulous condition of the urethra led to the belief that sexual intercourse had taken place.

Case 2. Mrs. A. P. F., age 34, married 10 years, had never menstruated or manifested any menstrual molimen. She was exceedingly well developed and there was no deficiency of sexual desire or excitability. On the contrary, she had been subject to intense sexual excitement occurring at irregular intervals and generally continuing several days. The mammæ, the vulva, the mons veneris, and the pelvis externally were found to be perfectly developed.

The vaginal touch showed that the vagina terminated in a cul-de-sac at a depth of 2 inches. A steel male bougie carried into the bladder could be swept freely to the right and left, and the finger introduced into the rectum, could be felt pressing against it; through the walls of the bladder and rectum a slight elevation on each side of the median line could be felt and was regarded as a rudimentary uterine mass.

On account of the severity of the epileptic seizures her intellect had become gradually impaired.

The post-mortem examination disclosed the following facts. A hard conical nodule was found, on introducing the hand through the abdominal incision, on each side, the two meeting behind the bladder. The finger introduced into the vagina was arrested at about 2 inches, and above this point to the union of the nodules above, a distance of about 1½ inches, nothing existed in the way of fibrous cords, nor the slightest canal.

This was a uterus bipartitus, the body and cornua were solid and contained no cavity.

Complete absence of the uterus has been doubted by many, partly because a more careful study of cases recorded as authentic rendered the presence of rudiments of a uterus presumable or evident, and partly because cases of absence of uterus which are founded simply on examination of living women do not seem sufficiently conclusive, and to this class by far the greatest number of recorded cases belong.

Inasmuch as the Fallopian tubes, uterus and vagina are developed from Müller's ducts, as we have seen, the existence of any, even a small portion of the vagina may be accepted as evidence that the development of the uterus and Fallopian tubes also has at least been attempted, though that development may have been interrupted at any point. Some rudiments of the uterus may therefore be assumed to exist. Notwithstanding this it has been proved that the uterus may be entirely absent, and in such cases the ovaries and tubes may either exist in a rudimentary condition or be also entirely absent. In the former case the rounds ligament branch off at the inner extremities of the ovaries.

If the uterus, ovaries and tubes are absent the external genitals may be either perfect or defective. Whenever the external genitals are perfectly developed, rudiments of a vagina generally exist, and in these cases the urethra is most frequently found very much dilated, so much so that it has frequently served as a vagina.

Emmet reports a case where a surgeon incised a dilated urethra mistaking it for the vagina, and causing incontinence of urine.

An erroneous idea seems to be prevalent that in cases of congenital atresia of the vagina, a patulous urethra always indicates that sexual intercouse has taken place through this organ. This patulous condition of the urethra is the result of an arrest of development and almost invariably accompanies congenital atresia of the vagina, arrest of development has taken place in Müller's ducts, and the anterior

portion of them which joins the bladder and forms the posterior wall of the urethra, is not developed; consequently the opening of the urethra is larger, and is situated below and internal to its normal position—almost in a line with the normal opening of the vagina—and therefore the vagina being closed by atresia, the urethra would more easily receive the male organ. This patulous condition is the primary one, and is the *cause* and not the *result* of penetration. Moreover in cases of *acquired* atresia of the vagina the urethra is never patulous, and sexual intercourse never takes place through it, but on the contrary, the seat of obstruction in the vagina is gradually pushed back by the penis. In these cases of congenital patulous urethra, there is never incontinence of urine.

Morgani, *De sedibus et causis morborum*, Lib. III, Ep. 46, relates two interesting cases of congenital atresia of the vagina with defective development of the uterus and patulous urethra.

The first case he describes as follows: "The vulva of the woman was in a perfect and natural state. But that canal, as they called it in the time of Celsus, into which it opens, and which we now call the vagina, had scarcely run on more than a third part of its proper length, when it suddenly terminated. There was no cicatrix at that place nor below it; the woman herself or her parents could none of them call to mind any ulcer, or any other preceding disorder, in consequence of which the sides of the vagina might have coalesced, for if these parts are ulcerated either from the lues venerea, from the difficult birth or from any other cause where the carelessness of the surgeon or the midwife has coöperated with the disorder, how easily the sides of this canal may grow together. However, not only nothing of that kind had preceded in this woman, but every part moreover, being smooth, shining, and equal when you had opened and dilated the vagina as far as the occlusion, nor indeed did this occlusion in the least give way either to the finger or to the penis of the husband, which had now for three years' space been frequently forced against it."

In Morgani's second case, the woman stated that she was not indeed imperforate, but had so very narrow an aperture, that an eminent physician in a city of great learning, who was at the same time a surgeon, having examined her in early puberty, advised that this aperture should be gradually dilated by introducing such things as were proper for that purpose; but that everything else a more mature age, and a husband, if she should marry, would accomplish. She stated that she had introduced something of the kind recommended, and in some measure had succeeded in dilating somewhat the orifice of the foramen; but could bear no further dilatation, that her husband also, to whom she had been married three years, had by frequent attempts somewhat enlarged the same orifice, but could never enter it. Morgani goes on to state that when he examined the woman and saw the foramen of which she had spoken, he immediately knew that it was the orifice of the urethra out of its situation; and that thanks ought to be given to God, that the woman could not suffer any further dilatation of that passage, as, if she had, the consequence without doubt, would have been, that she could never have retained her urine. Upon further examination, he found the vagina occluded entirely by a solid thick membrane, and he believed the uterus to be absent.

M. Ad. Burggrave, Professor of Anatomy in the University of Ghent, has recorded in the *Annales d'occilis, et de Gynecol.*, 1839, the two following instances of complete absence of the uterus which had come under his own observation:

In the *first case* the vulva had no vaginal orifice; the urinary meatus was situated in the centre of this latter, the contour of which had been ruptured in the act of copulation, readily permitted the introduction of the finger into a sac, the parietes of which were soft and membranous, and which was easily recognized as the bladder. When a catheter was introduced into this sac and the finger into the rectum at the same time, it was evident that there existed no organ between the intestine and bladder, that these were in immediate contact, as is the case in the male sex.

In the *second case* the absence of the uterus was verified by post-mortem examination. The subject of this was a woman 23 years of age, who died in the Civil Hospital of Ghent, of arachnoiditis.

This woman was of robust constitution and plethoric habit; her mammæ were well developed, pelvis large; sexual parts well covered with hair. The vulva presented only a very large meatus, the circumference of which was irregular and furnished with numerous myrtiform caruncles. This meatus led immediately into the bladder, which was in direct contact with the rectum. The ureters, instead of descending toward the base of the vesical triangle, opened immediately within and on the side of the urinary meatus, so that the bladder was situated behind these conduits. The orifices of the urethra were surrounded by sphincters, which were capable of closing them and thus preventing the immediate flow of urine.

Beyond these sphincters the ureters were very much dilated, and this enlargement extends to the kidneys, so that during life these passages had performed the office of reservoirs. The genital apparatus consisted of two ovaries, well formed, situated in the folds of the peritonæum, and containing numerous ova, many of which were in the hydatid state. In the same peritoneal fold, and immediately in front of the ovaries, were the Fallopian tubes; these last had no canal, and were enveloped in a thick mass of erectile tissue. These tubes were joined behind the bladder without communicating one with the other. The subject of this case had never menstruated, and had manifested very marked venereal appetite.

One of the earliest recorded cases of arrest of development and absence of the uterus is related by Realdus Columbus in his work, "De Re Anatomica," in 1572. It is described as vulva rara.

In Case 2 the condition of the hymen as being dense and hard, and nearly closing the vaginal orifice, is mentioned.

There is another condition which is frequently con-

founded with imperforate hymen; this is an occlusion of the lower portion of the vagina immediately behind the hymen. This occlusion is of embryonic origin, and is caused by defective development of the lower portion of Müller's ducts, and is sometimes improperly described as a double hymen. More frequently, however, it is overlooked or mistaken for the hymen itself, from the fact that it is pressed forward by the accumulated blood in hæmatometra and hæmatokolpos, and lies almost in immediate contact with the hymen.

I will state the following conclusions:

1st. Nearly all the malformations of the female sexual organs, previous to puberty, result from arrest of development.

2nd. As the upper and lower portions of Müller's ducts develop independently of each other, we may find the ovaries developed without the uterus, and *vice versa*.

3rd. Perfect development of the external genital organs and the mammary glands does not preclude defective development of the vagina, uterus or ovaries.

4th. Entire absence of the uterus or the ovaries can only be determined by post-mortem examination or by laparotomy.

5th. A patulous urethra is not the result of sexual intercourse through this organ, but is caused by arrest of development.

6th. In congenital atresia of the vagina a patulous urethra is the rule, in acquired atresia it is the exception.

REMARKS ON THE SURGICAL TREATMENT OF THE MALIGNANT DISEASES OF THE UTERUS.

BY WM. H. BYFORD, M.D., CHICAGO.

Presented to Section of Obstetrics and Diseases of Women of American Medical Association, May, 1884.

The malignant diseases that more frequently attack the uterus are:

1st. Epithelioma.

2nd. Medullary carcinoma; and

3rd. Sarcoma.

They occur, according to my observation, in the order of frequency here mentioned.

Probably not less frequently than the sarcoma is found the epithelial or corroding ulcer. Preparatory to the surgical treatment of these affections I desire to make some observations, particularly as to the tissues first invaded by them, their mode of development and manner of destruction. My idea of an epithelioma is that the deposit occurs on the free surface of the mucous membrane, in its epithelial stratum, and consists essentially of extreme multiplication of epithelial cells which, after great development of the tissue in which the process is going on, die, causing sloughs of greater or less size.

This form of malignant disease (call it cancer or cancroid, as you please) is located so that the comparatively dense mucous membrane is between it and the more vascular uterine tissues; hence its cells do not readily find their way into the circulation, and it is at first, and long remains, a local affection.

Another peculiarity is that it does not, until quite late, and sometimes it never destroys the deeper portions of the viscus by ulceration.

The direction is to the surface, and the process of necrosis destroys the superficial morbid growth. The disease is one in which the morbid advancement is away from, instead of into, the substance of the organ.

The second variety of malignant disease of the uterus consists in a great multiplication of cells in the lymph spaces beneath the mucous membrane, which are the terminal cavities of the lymphatic vessels. These cells are probably the epithelial cells of the endothelium of these terminal lymphatics. The deposit is therefore behind the mucous membrane, and really has no barrier to resist the entrance of its cells into the lymph current. This circumstance allows of the early migration of the morbid material to the neighboring and even distant organs, almost as early as they commence formation.

These features of the locality of the deposit are the cause of its greater malignancy, and have given rise to the notion that it is of general instead of local origin. There undoubtedly occur cases in which both varieties coexist from the commencement.

Necrosis in the second variety is caused by the distension of the lymph spaces until the small blood-vessels are strangulated by pressure, and nutrition in the mucous membrane to which they are distributed is arrested.

Small sloughs are detached and thus ulceration is inaugurated which continues till all the invaded tissues are destroyed or the patient dies.

In the third variety of malignant diseases—sarcoma—the cells are generated in the fibrous or connective tissue outside the lymphatics, both in the substance of the cervix and its mucous membrane.

The migration or dissemination of the cells in sarcoma is not so easy or early as in the second, but is more so than in the first variety.

If I am right in this explanation of the difference in the origin and progress in the morbid processes of the malignant diseases of the uterus, it will not be difficult from it to determine the cases to which radical surgical proceedings are applicable, and in which the prognosis under treatment is more or less favorable. I believe that curability is sometimes possible in the first and never in the second or third varieties, but in all, surgery constitutes the most effective means of palliation. There are some cases of epithelial cancer that may be effectually extirpated, and a complete cure accomplished.

A regard for truth requires it to be said, however, that the curable cases of epithelioma are a small minority; but on the other hand it may be said that in a majority of cases life may be much prolonged, and great comfort secured while the patient lives.

Almost all of them are, therefore, proper subjects for surgical treatment. Believing that in this variety

alone a complete removal is practicable, how shall we operate?

If removal of the whole uterus either per vaginam or through the abdominal walls is ever justifiable, the operation should be confined to this variety.

The mortality from this operation is, I think, too great, however, for it ever to gain admission to the category of legitimate operations. The statistics of extirpation of the uterus for cancer have been recently successfully appealed to by Dr. J. Reeves Jackson as evidence that the operation is not justifiable.[1] He very properly concludes that extirpation of the cancerous uterus does not lessen suffering, and it shortens the aggregate of life.

It must be stated, however, in this connection, that the statistics are of much less value than they might be; for while the danger of the operation is the same in all forms; on account of want of discrimination in the reports of the kind of cancer operated upon we cannot judge what the success would be if it was practiced for the epithelial variety alone.

If extirpation is to continue in favor with reckless surgeons it is to be hoped that in future more care will be taken in reporting particularly the nature or variety of the cancer operated upon.

It will then be seen, I have no doubt, that the successes will be on the side of peripheral or epithelial cancer, and the greatest number of deaths will range themselves under the head of interstitial or medullary cancer. I feel assured, however, that more observation will cause the operation of extirpation to be expunged from the future list of operations for cancer of the uterus.

The late Dr. J. Marion Sims, as in many other instances of uterine surgery, took the lead in the appropriate radical treatment of cancer of the uterus.[2]

It is to be regretted, however, that he did not sufficiently indicate the variety of cancer in which he operated, to enable us to know in what cases his process was successful.

Notwithstanding this defect in his reports, to him must be accredited the greatest improvement in the treatment of cancer ever yet made, and in his method we can see the first scientific and successful effort at a radical cure of this almost incurable disease.

In one case of which I was personally cognizant of epithelial or peripheral cancer, he operated over ten years ago, and the patient is now living and apparently free from the disease. His method has since been resorted to by many operators, and, as might have been expected, with varying success, for no surgical procedure will invariably insure a cure in what would seem the most favorable cases.

His method has been modified to some extent by those who have followed him.

It consists in cutting away the whole cervix and as much of the body as will insure the removal of all the disease accessible, followed by thorough and deep cauterization of the whole excised surface. In some cases, as in the one above, this treatment will effect a cure. To perform this operation easily, the patient should be placed on her back, with the hips brought down so as to project slightly over the end of the table, with the limbs flexed over the abdomen (Simon's position), and the perinæum drawn well back. After this preparation the cervix should be seized by both lips if possible, with a vulsellum, and depressed until considerable tension is apparent—no more force than this is necessary or permissible—and an incision made with the knife or scissors through the mucous membrane at the junction of the vagina and cervix, so as to entirely encircle the latter.

Through this circular incision the neck and body of the uterus may be enucleated to any desirable extent. The connective tissue between the bladder and uterus and the peritonæum covering the uterus is so loose that proper care will enable us to separate the latter from its investments, and the portion of the uterus thus isolated may be cut away. When we are successful in removing half or two-thirds of the uterus from its peritoneal investment it is not proper to apply any caustic, as it would be likely to penetrate the bladder or peritoneal cavity.

It is, however, quite advisable to apply the hot iron to the stump of the uterus, for the double purpose of checking the hæmorrhage and destroying the tissue to a still greater depth.

The iron must be below red heat, or else neither of these objects will be accomplished.

If any considerable hæmorrhage attend or succeed this operation, the cavity should be filled with cotton saturated in a solution of Monsel's iron half strength. This operation is applicable to cases where the disease has not invaded the cavity of the uterus to any considerable extent.

But there are cases where the mucous membrane of the cervix and body is the subject of epithelial degeneration while that covering the external portion of the neck is not affected. The disease is then not generally curable except by complete extirpation of the organ. It may sometimes, however, be effectually removed in its early stages by excavation with the curette and caustics. Later, when the fibrous structure of the organ is softened by the deposit, this cannot be done. The object of the operation is to remove the *whole* mucous membrane with the deposit, and it will require great care to do this. The uterus should be drawn down and fixed with the forceps by seizing the posterior lip, and then a small sharp curette introduced to the fundus, and by forcibly carrying its sharp edge over the whole surface first in one direction and then another until the tissue removed is entirely free from the morbid deposit.

It will often be best to use larger curettes as the scraping proceeds. Judging from my own observation there is not much danger of cutting through the wall of the uterus when the case is one of epithelial degeneration of the mucous membrane instead of cancerous degeneration of the parietes. The latter kind of deposit renders the tissues friable and they break down under the curette. In the cases of pure epithelioma as I have defined the affection, that friability does not exist, and if we go through the wall it is by using too much force.

After we have thus thoroughly removed the disease

[1] Gynæcological Transactions for 1883.

[2] *American Journal of Obstetrics.*

from the cavity we should increase the probability of a cure by the introduction of a caustic.

This part of the operation should also be done with a thoroughness that attacks every portion of the cavity.

For this purpose I think the acid nitrate of mercury the best caustic. Small pellets of cotton saturated with the acid, afterwards squeezed as nearly dry as possible, and if prepared several days before used so much the better.

Each one of these should be well secured by strong thread, that they may be easily removed.

The uterine cavity should be packed full of these and then the vagina should be filled with absorbent cotton pressed well up against the cervix.

Chloride of zinc, nitric acid or bromine may be substituted for the acid nitrate, but I believe the mercury in this latter preparation adds to its efficacy.

When we use the caustic in the scraped cavity we should remove it in about twenty-four hours and then keep the parts clean by irrigation.

If there is any return this operation may be repeated as frequently as necessary. In some instances where I have repeated this operation two or three times, I have found the uterine cavity becoming smaller each time. The diseased surface therefore becomes less after each successive operation.

In an excellent paper published in the *American Journal of Obstetrics* for April, 1882, Dr. W. H. Baker, of Boston, gives a flattering account of his success with the operation for the removal of a part of the uterus, per vaginam.

He reports six cases in which after the lapse of five years there was no return; so they are probably entirely cured, and that in thirty cases he has had no deaths.

This encouraging report establishes the *efficacy* and *safety* of the operation when skilfully done.

While I fully accord to Dr. Baker great credit for his labor in this direction, I must be allowed to complain that he has not been sufficiently definite in the description of his cases to enable us to distinguish between those in which the disease began in the mucous membrane, and such as were of interstitial origin; and I protest that no such success can be attained where the deposit was located in the fibrous structure of the uterine walls. I wish also to disclaim any pretension that even in the earliest stages of development all these cases can be cured.

I only desire to be understood as believing that it is the most promising and safest method of treating the disease when confined to the mucous membrane, without any considerable tumefaction and distortion of the cervical parenchyma. My own cases are not very numerous, but among them I think I can count at least six cases of success, and more, in which I have strong hopes that there will be no return of the disease.

In almost all cases and all kinds of malignant diseases of the uterus, surgery is the important palliative means.

While hæmorrhage, pain, mental worry and other conditions contribute to the general result in cancer of the uterus, nearly all the sufferers die of septicæmia.

The absorption of putrid material connected with the process of necrosis or sloughing of the tissues invaded by the deposit, so poisons the blood that septic fever is sure to be established.

The septic symptoms are influenced in their intensity by the amount of sloughing, and the power of resistance afforded by the constitutional condition of the patient. Usually almost no symptoms present themselves during the time the deposit is going on. When the tissues commence to break down the cancerous cachexia begins to show itself, and cancerous cachexia simply means septicæmia. Its peculiarity depends upon the fact that it is slowly established. When once established it gradually increases in severity until the patient succumbs to its exhausting influence.

In interstitial cancer we may alleviate the symptoms by removing the sloughing surface by the free use of the sharp curette. In many instances where the sloughing surface is large and the sanious discharge very great, shaving off the entire necrosed substance down to the living tissue will arrest the septic symptoms so completely, and relieve the suffering to such a degree, as to inspire the patient with hopes of recovery.

The operation of curetting should be resorted to early and repeated frequently, until the destruction of the organ is so great as to render it impracticable.

The process of removing the necrosed tissue with this instrument, is simple and free from danger. If the cutting is carried only far enough to get away the sloughs down to the underlying living tissue, no blood-vessels will be severed large enough to give rise to serious hæmorrhage.

Probably the greatest danger consists in tearing through into the peritoneal cavity, and wounding the bladder, ureters and rectum. In the advanced stages of the disease, when the deposit extends to these parts, such accidents may be rendered imminent.

They may for the most part be avoided even then, and until far advanced they may always be avoided. Such accidents usually occur as the result of too much pressure upon the instruments, and the effect is not so much by cutting as by tearing the tissues rendered friable by the existence of the deposit in them. The curette should therefore be very sharp, and it must be applied so lightly that the process is one of cutting only.

The instrument ought to be very small as well as sharp, so that it may be carried with facility into all minute sulci of the affected parts.

Every part brought under the instrument must be plainly visible, and the whole operation should be guided by the eye. This may be best accomplished by dilating the vagina well with Simon's instruments and allowing a stream of water to forcibly run into the cavity through an elastic hose connected with an elevated fountain. This current of water, if well directed, will wash out the clots and sloughs so completely that we can all the time see the depth and extent to which the strokes of the instrument extend. I must insist that this operation, thus lightly and

thoroughly done, may be executed without giving the patient any considerable inconvenience, and also that it ought to be often repeated from the time the septic symptoms begin until the sloughing parts can no longer be reached.

I believe that caustics cannot be made half as efficient for this purpose as the curette. The process of curetting the surface of the superficial cancer for removing the sloughing material is also the most efficient means of palliating the symptoms when they cannot be cured. Of course I do not wish to ignore the value of disinfectant applications as palliative measures. After curetting, and sometimes without it, the free and frequent application of the muriated tincture of iron will often so disinfect the surface as to keep in abeyance the septic symptoms for a long time.

The value of this remedy I believe was first taught by the late Sir James Y. Simpson, and so greatly did he esteem the application that he believed in certain cases the advance of the disease might be arrested for an indefinite period.

SUMMARY.

1st. The more common forms of malignant diseases of the uterus are:

(*a*) Epithelial or superficial cancer, commencing on the free surface of the mucous membrane.

(*b*) Interstitial (medullary) cancer, commencing in the fibrous structure, the deposit being within the lymph spaces.

(*c*) The coexistence of these two varieties.

(*d*) Sarcoma, in which the cells are mingled with the fibres of the connective tissue.

2nd. The superficial cancer can often be removed and consequently cured.

(*a*) By ablation of the cervix and as much of the body as necessary.

(*b*) When affecting the mucous membrane of the whole cavity, by thoroughly and repeatedly curetting all the morbid deposit away and cauterizing with acid nitrate of mercury, bromine or chloride of zinc.

3rd. The interstitial variety is incurable by any method of operation or by any means.

4th. Frequent and thorough removal of the necrosed down to the living tissue by the curette is the most efficacious of palliative measures in the latter variety.

POLLUTION OF THE UPPER OHIO, AND THE WATER-SUPPLY OF THE CITIES AND CHIEF TOWNS WITHIN THE FIRST HUNDRED MILES OF ITS COURSE.

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Read before the American Public Health Association, at the meeting in St. Louis, October 16th, 1884.

The condition of health and probable duration of life of a people may be correctly measured by the quality and quantity of their water-supply. Indeed, good health can as little be supported without pure water as without pure air; therefore, of all the diversified and complex relations which man bears to surrounding influences, none are more important than that which relates to the water-supply of the locality in which fortune has placed him.

Considered either in his physical, social, moral, industrial, or political relation, the subject is of transcendent importance, for it involves the main questions of success in life. If he take up his abode in the midst of unsanitary surroundings, the inevitable sequence will be a correspondingly unfavorable influence upon his destiny — a check upon his prosperity, and a blight, more or less serious, upon all those attributes which are usually considered essential to his well-being and happiness.

As a natural corollary, the community which is ignorant or regardless of its sanitary surroundings and vital history, is but feebly defended against "the pestilence that walketh in darkness, and the destruction that wasteth at noonday;" for the wholesome lessons of domestic and civic hygiene afford to such a people no rules and defenses for the person, the domicile, the municipality and the State, nor encouragement to the general prosperity in stimulating the practical applications of science and art, commercial enterprise, manufactures, and popular intelligence. All these are at a low standard, while frequently recurring endemic and epidemic diseases, and a high death-rate, constitute the most prominent features of their culpable history.

River pollution from sewage and other supplies of refuse and corruption in towns and cities has assumed such fearful proportions that the question presses itself upon wise men and sanitarians—"Is industry free to tumble out whatever horror or refuse it may have accumulated into the nearest crystal brook, regardless of gods and men, and little fishes; is free industry free to convert all our creeks and rivers into sewers?" "It is ours," says Dr. Gairdner, "to use air and water, and then pass them on; but woe to the man or the community that detains or imprisons these his servants of the hour in their further execution of God's endless work!"

With these introductory reflections, I now submit the following brief statement of facts relating to the water-supply of the cities and chief towns situated on the banks of the Ohio River within the first hundred miles of its course.

Commencing at the head of the Ohio, there are two cities—Allegheny and Pittsburgh—whose aggregate population is not less than 240,000. Next, Rochester, Pa., a town of 3,500 population; next, East Liverpool, O., with a population of over 6,000; next, Wellsville, O., with a population of 4,500; next, Steubenville, O., with a population of 14,000; next, Martin's Ferry, O., opposite Wheeling, with a population of 4,600. On the West Virginia shore, between Wheeling and Pittsburgh, the principal towns are New Cumberland, with a population of 1,500, and Wellsburg, 16 miles distant from Wheeling, with a population of 2,000; next, Wheeling, with a population of 31,500; next and last, Bellaire, O., with a population of 10,000.

And thus, not including many smaller towns and thriving villages which mark every few miles of the Pennsylvania and Ohio shore, and whose varied industries in manufactures give employment to thousands of laborers, there are above Wheeling four cities and five towns whose aggregate population amounts to 275,000.

Besides refuse representing accumulations of filth of every conceivable character from family domiciles, stables and barnyards, privy vaults and other cesspools, sewage outlets, and manufacturing establishments, the Ohio River is made the convenient receptacle for the disposal of diseased or worthless carcasses; and thus thousands of tons of corrupting matter are daily thrown into the stream which supplies the water we drink. No wonder then that diarrhœas and typhoid fever are so common, and the death-rate from these diseases is so high.

But let me be more specific in my statements. Passing Rochester, at the mouth of Beaver River, 26 miles below Allegheny and Pittsburgh, without further record than that its water-supply is from wells contaminated with surface putrilage, and in many instances, no doubt, by leaks from privy vaults and drains from kitchen sinks—and that typhoid fever is a frequent disease in that community,—we come to East Liverpool, 19 miles further down the stream. Here the population is supplied with water pumped from the Ohio and distributed from a reservoir. The supply pipes to the pumps are located about 200 yards above the city, and extend into the river far enough to take the water from the current, below low-water mark. There are but few wells in use; and fewer cases of typhoid fever have occurred since the erection of water-works than before, or when the water-supply was wholly drawn from wells. During those years, house and street epidemics of typhoid fever were not infrequent.

At Wellsville, 4 miles below East Liverpool, a well, or *crib*, as it is called, was made near the river's edge, a year or two ago, for the purpose of securing for the town a sufficient supply of clear water—the authorities believing *clear* water and *pure* water to be convertible terms. This crib, 10x16 feet in the square, and 12 feet deep, was encased with timbers and tightly covered with the same material. From such a "hole in the ground" the water-supply was pumped into a larger basin on the hill. It was confidently expected in that way to procure "pure filtered water from below the bed of the river;" but the supply was found to be so foul and unwholesome that it was not fit for use, and the crib had to be abandoned. Since then, the supply has been drawn directly from the current of the river, above the inflow of the town's refuse, and distributed from a reservoir 300 feet above the river-level. But this better water-supply has not secured the citizens of Wellsville against typhoid fever cases which appear at all seasons of the year.

For the foregoing history of the sanitary situation in East Liverpool and Wellsville, I am indebted to R. H. Hill, Esq., of East Liverpool, and Dr. J. W. Hammond and S. Stevenson, Esq., of Wellsville.

From Steubenville, 20 miles below Wellsville, Dr. Gustav Shane, of that city, has kindly sent me the following description. He says: "This city is supplied with water pumped from the Ohio River into a large reservoir on a neighboring hill, and from thence direct to the consumer, by mains and cross-mains. The basin or reservoir is made of brick laid in and covered with cement, and of sufficient capacity to supply the ordinary wants of the population—14,000—for about 3 days. The supply is taken at a point *below* both the geographic and population centre of the city, but the receiving-pipes are laid to and beyond the channel so as to avoid contamination from surface drainage and sewage.

"The quality of the water drawn from the mains is apparently good, clear, free from odor, and not unpleasant to the taste except when the river is turbid. But few wells are in use in the main portion of the city; but a part of one ward—on the first river-bench—is supplied with well water.

"The city is not sewered, and the privy system is the time-honored one of deep vaults, which, when full and abandoned, are covered with earth, and in this way the surface is completely honey-combed.

"There are at all seasons of the year cases of typhoid fever occurring sporadically, but the disease has not prevailed as an epidemic for many years. That part of the city in which well-water is used, appears to have the largest percentage of febrile cases, and, I believe, a preponderance of the typhoid type. Dr. Stanton, the oldest practitioner in the city, whose experience antedates the river water-supply, informs me that typhoid fever was much more common under the well-system of water-supply than since the establishment of the water-works. Thirty-five or forty years ago, or before the adoption of the river supply, house and neighborhood epidemics of typhoid fever were quite frequent, whereas, at present, such outbreaks are almost entirely unknown.

"Isolated cases of diphtheria are also constantly occurring, at irregular intervals, in Steubenville, but no general visitation of this disease within the last 15 years. During the winter of 1878 and '79, a fatal neighborhood epidemic of diphtheria occurred, limited by street lines, and embracing about one-fourth of the population of the city. Scarlet fever prevailed at the same time in severe form, and in many instances the two diseases—scarlet fever and diphtheria—were associated in the same patient. There seemed to be no cause for this visitation other than contagion."

The next place on the line of this inquiry is Martin's Ferry, 20 miles below Steubenville, and immediately opposite Wheeling. Here the water-supply is from wells varying in depth from 15 to 50 feet, dug through a rich loam, yellow and blue clay, sand and gravel. The town is not sewered, and in some instances the well and the privy vault are in dangerous proximity. On account of the general topography of the town, and the superficial clay-substratum, all refuse and surface matter which does not find immediate entrance into the well-water supply, is quickly drained into the Ohio river. The result of the unsanitary condition is the constant prevalence of typhoid fever of a grave and fatal type in Martin's Ferry.

And now having reached Wheeling, the chief city in West Virginia, the situation is even more uninviting than the unsanitary pictures we have been inspecting; for it is within the truth to state that, including the population of Martin's Ferry, the refuse from the homes of 10,000 people finds entrance into the Ohio river immediately *above* the point of supply to the water-works' pumps. And if filth from hundreds of households, manufacturing establishments, privy vaults and other cess-pools, horse and cow stables, and the stinking bodies of dead animals, were all of the sources of pollution of the water supply of Wheeling, its citizens might congratulate themselves that, at least, they are not worse off than some of the neighboring cities; but, in addition to the sources of pollution just mentioned, an old and dilapidated cemetery—Mt. Wood—occupying the hill at the northern part of the city, and within a half mile above the water-works, is a highly probable factor of contamination.

The greater part of the coal-measure underlying this cemetery has been removed, and the cap-rocks have broken and sunken, causing large seams or cracks through the hill; and the inclination of the drainage, both surface and subterranean, being towards and into Jonothan's Ravine, at the foot of the hill, which empties its current into the Ohio within the city limits, it is therefore highly probable that the water-supply in the basin is polluted by the corruption escaping from the graves and vaults in Mt. Wood.

The water-works, though greatly improved by new machinery within the last year, occupy the same site upon which they were originally erected more than 40 years ago, when Wheeling was not one-fifth of its present size—31,500.

The basin or reservoir is located on Wheeling Hill, 275 feet above the bed of the Ohio river, and has a capacity of 800,000 gallons. Its small size necessitates constant use of the pumps both day and night to keep the mains full; therefore at all times the quality of the water in the basin is the same as that in the current of the river. In other words, if the water in the river is muddy, the supply in the basin is likewise turbid and disagreeable to drink.

In hope of securing a clear and wholesome water—but unmindful that clear water is not always pure water—the Board of Water Commissioners, last year, concluded to repeat, with some improvements, the experiment made at Wellsville of a crib or well below the bed of the river; and accordingly a hole, 15 feet deep and 20 feet in diameter, was dug through the sand-bar, in the bed of the river, near the Island shore, and about 200 yards above the present point of supply to the basin. This well or crib was substantially walled with brick laid in cement and tightly covered with heavy timbers, bolted to the wall, to prevent all leakage from the current. The water that soon filled this well or crib, by percolation, was so clear and beautiful in appearance that the Board, a few weeks ago, contemplated the immediate establishment of three additional cribs, side by side with the one just described. Fortunately, however, before making such outlay of the public money, and connecting such cribs or wells with the water-works and the basin, the Board wisely determined to have the waters in the crib and in the basin analyzed; and specimens were forwarded to Dr. Charles Smart, of the U. S. Army, for that purpose. The following is Dr. Smart's report of the analysis:

SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C.,
September 26, 1884.

DR. JAMES E. REEVES, SECRETARY STATE BOARD OF HEALTH, WHEELING, WEST VIRGINIA: *Dear Sir:*—I have received yours of the 19th inst., invoicing two half-gallon specimens of the water-supply of the city of Wheeling, West Virginia, and requesting me to make an analysis of the water, and to report in such terms as may be authorized by the results of the analysis. The specimens were received in good condition, in green glass bottles securely corked. One was marked "No. 1, Island Crib;" the other, "No. 2, City Reservoir."

No. 1. This water was clear, transparent, and free from color and odor. A slight sediment of a dark color, pulverulent and somewhat granular, had collected in the bottom of the bottle. This sediment consisted of organic matter so disintegrated that its origin could not be discovered; several of the larger granules were composed of the disintegrated matter aggregated on small fragments of cotton fibre. It swarmed with bacteria and bacilli, and showed many minute protoplasmic masses and some larger masses presenting amœboid movements, but contained none of the algæ and infusoria which are so common in waters that are in general use as potable waters. Generally speaking, waters that are free from the actively-moving ciliated infusoria, and that present a comparatively dead microscopic field, are waters that have percolated through a very pure or a very impure soil. In other words, they are very pure spring or very foul well waters. In the one case the field presents silicious particles, diatoms and the filaments of the conferoid genera; in the other the microscopic appearances are those mentioned as observed in the sediment of the specimen under discussion.

Under laboratory treatment the water was found to give a residue constituting 49 parts in the 100,000. Twenty of these parts were dissipated by heat, and consisted principally of the nitric acid of nitrates. There was but little recent organic matter in the residue—scarcely enough, when ignited, to darken the inorganic film with a fleeting coloration. In this respect the water residue was similar to that of a pure spring-water; but it differed from the latter in the strong nitrous fumes which were evolved during the application of the heat. The presence of the nitric acid was also developed by Sprengel's solution; but it was not considered needful to determine its amount directly, as the operations on the residue indicated that two-thirds of the 49 parts in every 100,000 of the water consisted of nitrates, and the remainder of chlorides, carbonates and sulphates.

The chlorine present amounted to 1.9 parts in 100,000 of the water, which is equivalent to 3.1 parts of chloride of sodium. This is not a large chlorine figure, considered in connection with the

nitrates present, and indicates that the organic matter whence the latter are derived is not wholly, or, indeed, chiefly, a sewage material, although sewage may be present in it.

The free ammonia in the water measured .014 part per 100,000. This is a larger quantity than is usual in percolated waters known to be of good quality, and indicates, with the strong trace of nitrous acid which was found by Griess's delicate test, that the organic matter from which the nitrates are formed is not distant from the reservoir in which the water is collected, or that the filtering material or soil through which percolation is effected, is itself of such an impure character as to be incapable of effectually purifying the water in its transit.

A similarly small amount of recent organic matter is indicated by the quantity of oxygen required to oxidize it, to-wit: .110 part per 100,000 of the water.

From the rapid manner in which the albuminoid ammonia was eliminated in the laboratory experiment, from the relatively small proportion of carbon present, as indicated by the small quantity of oxygen required, and from the large amount of nitrates and small amount of carbonates in the residue, it is inferred that the small quantity of organic matter present in the water and the very large quantity which has recently been reduced to the inorganic form of a nitric acid salt, are of animal derivation. No undecomposed sewage is present in the water, but the quantity of chlorine renders it probable that decomposed sewage is not absent.

In the absence of all knowledge of the surroundings or natural history of this water, the analyst cannot speak with decision upon its probable unwholesomeness. The microscopic appearances of its sediment are against it, as well as the greater part of the analytical results. It is true that there is in the water only a small quantity of unreduced organic matter, but there was a much larger quantity present in it a short time before it reached the reservoir whence it was drawn. This water, indeed, appears to be an example of the class which led the writer to generalize as follows in his report on the waters of Memphis and other Southern municipalities (Annual Report Nat. Board of Health, 1880, page 485): "On the other hand, when a well which is liable to an impure inflow, as evidenced by the co-existence of nitrates and nitrites, furnishes a sample which is free from albuminoids, and from oxidizable organic matter, the microscopic characters may give direct assurance that the water has not always been as pure as the sample submitted for analysis."

Although there is not much recent organic matter in the water submitted, the surroundings of the reservoir from which the water was collected are evidently such that at any time an increased inflow might carry undecomposed organic matter into it. As it is, the last traces of the organic matter are in progress of change. The nitrogen of the nitrates in a water may be as much dissociated from the organic matter which it at one time constituted, as the chlorine of the chlorides in the water of the ocean, but in this instance the nitrates are undoubtedly a recent formation, for the process of reduction is in progress in the water as submitted for examination. Nitrates alone are viewed by most sanitary authorities as indicating dangerous probabilities in a water. Frankland says that large quantities of nitrates convict water of previous pollution by organic matters of animal origin, and calls them an indication of the "previous sewage contamination" of the water. Some, as Ekin, of London, condemn as dangerously polluted waters which contain so small a quantity of nitrates as .5 or .6 part per 100,000, and Reuben Haines has met with cases which sustain Dr. Ekin's position. Without subscribing to the dangerous qualities of waters which contain so small a proportion of nitrates, the experience of the writer leads him to believe that, excluding the presence of existing organic matter, a water is to be regarded with suspicion in proportion to the amount of nitrates present, and that assuredly the water-supply of a city should not contain the very large quantity of nitrogen as nitrates which was found in the sample marked "No. 1, Island Crib," from the city of Wheeling, West Virginia.

More particularly dangerous are the waters which show a connecting link between the nitrates and their organic derivation in the form of traces of existing nitrites. In a recent investigation into the processes of water analysis, Professor Mallet, of the University of Virginia (now of Jefferson Medical College, Phila.), under whose direction the experiments were conducted, concluded that the danger was associated with the presence of nitrates and nitrites. In his report (page 203, Annual Report Nat. Board of Health, 1882) he says: "Looking at the results from the natural waters of classes I and II, and bearing in mind the conclusions reached by Müller, Schlæsing and Muntz, Storer, Warrington, and others as to the process of nitrification being due to the presence of an organized ferment or ferments of bacterial character, the idea suggests itself whether the noxious character of waters containing largely nitrates and nitrites—themselves presumed to be harmless—and but very little organic matter—which ought to be present of some sort, to support the previous contamination view—*may not be in reality due to the presence of a specially nitrifying ferment, itself to be classed among the lower organisms capable of propagating disease.*"

Nitrates and nitrites are harmless in themselves so far as we know. So, also, are the ordinary organic matters, animal and vegetable, from which these salts are formed, at least where existing in quantities which do not render the water containing them repugnant to the senses. It is not the ordinary organic matters of the world, decaying garbage, animal fragments, and even sewage, nor the nitrogen salts formed from them, that are dangerous when taken into the system with the water-supply, but certain morbific micro-organisms which may accompany them. These micro-organisms, which are the probable cause of cholera, typhoid fever and other specific diseases, are associated in particular with waters which contain nitrates and nitrites, and, indeed, it is not unlikely that the living ferment which effects the nitrification of organic matter may itself be morbific.

No. 2, City Reservoir. This water was clear,

transparent and free from color and odor. It contained a slight pulverulent sediment of an olive color, which consisted of disintegrated organic matter and some mineral particles, swarming with infusorial life, but without any algoid forms and with few bacteria.

The water yielded a residue amounting to 14 parts in the 100,000; of these, 10 parts were mineral matter and 4 organic and volatile. The organic matter was not present in such quantity as to give a dark coloration on ignition of the residue, nor were any fumes or odors evolved during the process. Chlorine was present to the amount of 2.1 parts, equivalent to 3.5 parts of chloride of sodium in every 100,000 parts of the water. No nitrates were present other than the minute quantity—less than Dr. Ekin's limit—usually found in river water. A trace of nitrous acid was present, indicating that the organic matter of the water was undergoing change to the inorganic condition. The free ammonia amounted to .013 part and the albuminoid to .017 part per 100,000 of the water, while the oxygen required to oxidize this weighed .160 part.

River waters are very variable in their constitution. During the periods of spring snow-meltings, and autumnal rainfalls, when the stream is swollen and turbid, its waters usually attain their maximum of impurity. The organic matter on the surface of the area of drainage is washed into the bed of the stream, and the rapidity of flow prevents sedimentation, which is an important purifying agent. In seasons of drouth, on the other hand, when the water-level is low and the current fed less by surface-shed rain showers than by tributary springs, the water is usually less impregnated with organic matter. From the transparency of the sample furnished and its minute quantity of pulverulent sediment, the analyst infers a low water-level at the time the specimen was collected. The specimen therefore represents the river-water in its best condition. The albuminoid ammonia distilled from the sample is not above the average of that obtainable from good river-waters; but the free ammonia and chlorine are in excess, and suggest a sewage inflow into the stream. If the sewage were suspected to enter in mass at one particular point, its influence on the quality of the water might be ascertained chemically by determining the free ammonia and chlorine in specimens collected above and below the point of supposed entry; but usually such determinations are unnecessary, as the point at issue may be better determined by a sanitary inspection of the area of drainage.

Sewage is decomposed by the influences acting in running water, and leaves only its skeleton in the form of the inorganic chlorides. The presence of the evanescent ammonia indicates a more recent contamination and a less perfect decomposition. But whether decomposed or undecomposed, sewage contamination is dangerous, not in itself; for waters polluted with sewage have been used for ages with impunity, but in that it may be accompanied by and be the means of spreading the infection of typhoid fever and cholera. The former has long been known to be preventable by the use of water which is free from sewage contamination, and the recent researches of Koch into the etiology of the latter indicate that a sewage-contaminated drinking-water supply is the most active agent in its propagation.

Respectfully submitted,

CHARLES SMART,
Surgeon U. S. Army.

The following supplemental report is not less interesting and instructive:

SURGEON GENERAL'S OFFICE,
WASHINGTON, D. C.,
September 29, 1884.

DR. JAMES E. REEVES:

Dear Sir:—Your letter of the 26th instant informing me of the history and surroundings of the water sent to me for examination, and marked respectively "No. 1, Island Crib," and "No. 2, City Reservoir," has been received and carefully considered in connection with the analytical results obtained from the waters in question. In my report on "No. 2, City Reservoir," I stated the probability of sewage inflow, and suggested a sanitary inspection of the drainage area as a more trustworthy means of determining a contamination of this character than is the laboratory work of the sanitary chemist. If the sewage is present in large quantity, and is not decomposed by natural causes, the urea present may be detected and estimated by the chemist. But urea is speedily broken up and leaves only the chlorides which accompanied it, with or without a trace of free ammonia, to evidence its recent existence. The sanitary inspector is therefore better qualified in many instances than the sanitary chemist to detect the presence of sewage in a water. Especially is this the case in surface waters where the water-shed and all its possible polluting influences are more or less known.

The germ or poison of typhoid fever may or may not be present in sewage. If it be not present the sewage is harmless as far as concerns the propagation of that disease; if it be present the water will convey the infection of typhoid fever whether the sewage is decomposed or not. In fact there is no evidence that the agencies which destroy ordinary organic or sewage matter in its course down stream have the slightest influence in destroying or removing the cause of this fever. On the contrary, all the evidence that has accumulated of late years shows the persistence of the germ or poison after the destruction of the sewage material which originally accompanied it. In the Lausen epidemic, for instance, there was not only a flow of several miles, but a filtration through the soil which sufficed to remove the minute cells of wheat-starch; yet the fever was undoubtedly disseminated by the infected water of the springs.

Instances of typhoid fever caused by well-water from which all trace of the sewage has disappeared, are of common occurrence in the recent records of medical progress. Before a city which uses a sewage-polluted water-supply can claim that the use of such water is not injurious or unwholesome, its health reports should show that typhoid fever is a rare disease among its citizens, although existing in the cities which cast their sewage into its water-supply.

The detection by chemical means of sewage in a water is therefore a matter of no moment. The point of interest is the contamination of the water-supply. If this is proved, the water is dangerous, and is undoubtedly the cause of much preventable sickness, which is accepted by force of habit as a normal condition.

It is not always in the power of an individual to prevent the sewage pollution of his water-supply by others who live above him on the water-shed; but it is always in his power to prevent his water-supply from being defiled by his own excreta. The sanitary laws which apply to individuals apply to their aggregation as communities. The city may not be able to prevent all defilement of the stream, but it is surely competent to preserve its citizens from swallowing their own filth, diluted but not rendered innocuous thereby, in its organized system of water-supply.

The water marked "Island Crib, No. 1," which I reported to you as a surface water that received a large amount of nitrates and nitrites during its percolation through some filtering material, I now understand to be the river water which has percolated through a sand-bar into a well or other reservoir. When the river is flooded and turbid, the filtration, of course, will remove the turbidity and give a clear water. But clearness and purity are not synonymous terms when applied to water-supplies. A water which contains strychnia might be perfectly clear. The Lausen water, in Switzerland, above referred to as having caused a deadly epidemic, was perfectly clear. At the present time the river water is as clear as the filtered water. They are, however, by no means the same waters. The one contains only 14 parts of solid matter per 100,000, the other 49 parts. The increase is the result of the filtration. It consists of nitrates and nitrites recently formed from organic matter. The organic matter which yielded them did not exist in the river water. It was therefore derived from the filtering medium, and freedom from turbidity is purchased at the expense of a dangerous change in the character of the water. I need not repeat what I have already said in my report as to the quality of this water. It is wholly unsuited for a potable water-supply, especially for a large community where the well-being of so many are at stake.

Sincerely yours,

CHARLES SMART,
Surgeon U. S. Army.

It is thus seen how narrowly the people of Wheeling escaped a positively dangerous water-supply, and it is to be hoped other communities may profit by the example. When Dr. Smart's report is read by the light of the history I have given of the surroundings, especially by the light of that unerring indicator of the character of the water-supply—the frequency of typhoid fever—it leaves no doubt on the subject.

An interrogation of the death-returns on file at the City Health Office shows that in the last 10 years there have been 460 deaths from typhoid fever, and 225 deaths from diphtheria within the same period. Indeed, typhoid fever is present at all seasons; some years showing a much larger mortality than in others. For example, in the year 1879 there were 90 deaths in Wheeling from typhoid fever, while in 1880 there were but 52 deaths from the same cause. The same is true of the prevalence and fatality of diphtheria.

There is an easy remedy for the present impure water-supply in the city of Wheeling, namely, the extension of the receiving pipes three miles up the river, or to a point above the town of Martin's Ferry. When this improvement shall have been made, Wheeling may justly boast of having an abundant supply of the purest water the Ohio River can furnish, and fewer cases of typhoid fever.

The next and last city to be named in this record is Bellaire, Ohio, the northern limit of which is but a half mile below the southern boundary of Wheeling. It has a population of 10,000, and is supplied with water pumped from the Ohio at a point within a half mile below the place used by the city of Wheeling for dumping night-soil and other corrupting refuse. In other words, the citizens of Bellaire swallow with the water they drink all manner of abominable filth from the city of Wheeling, and they pay a fearful penalty for their utter disregard of sanitary laws. Typhoid fever and diphtheria prevail in malignant form at all seasons, and the death-rate from these diseases exceeds that from all other causes combined.

Finally, it were well if the boasted civilization and refinements of the age in which we live could be presented in fitting contrast with the sanitary works of the ancient Greeks and Romans, who well understood the value of pure water. Vitruvius informs us that as an evidence of the practical wisdom of the ancient Romans, who were often regulated in their conduct and opinions—especially in military matters—by the Augurs and Soothsayers, they frequently consulted the appearances presented in the livers and spleens of animals with a view of ascertaing the state of the air and the waters of a country, the healthfulness of its food-productions, its pasturage, etc., and to regulate their choice of sites for the building of cities.

Even to this day, though so far fallen from her high estate, Rome is supplied with good water conveyed from a great distance by aqueducts which were built in the days of her splendor and renown.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

ON THE USE OF SAND-BATHS AS A BALNEO-THERAPEUTIC AGENT.—Dr Suchard, in charge of the hospital and baths at Lavey (Switzerland), has prepared an apparatus which allows of the heating of a large quantity of sand for bathing purposes. His description of its use is very interesting (*Jour. de Med. et de Chir. Pratiques*). His first case was that of an anchylosis of the knee-joint caused by an arthritis of two years' standing. He placed the leg and articulation in a box made for the purpose and filled with heated sand. After a few days of this treatment, the œdema and doughy feel of the tissues disappeared,

and a very marked increase in the temperature, circulation and sensibility was noted. Experiments have shown Dr. Suchard that the temperature of these baths can be much higher than with water. A temperature of 112° to 122° F. is very agreeable to stout patients or elderly rheumatics. Scrofulous swellings with torpid circulation and cold extremities, are not satisfied with less than 131° F. In cases of sciatica, localized rheumatism, and anchylosed or atrophied limbs, the temperature should be as great as 140° F. to give the parts a proper degree of warmth.

The first impression of the patient when placed in the bath is that of comfort; in about five minutes comes a feeling of discomfort and oppression, then relief comes when transpiration is established. From this fact the temperature of the body is not elevated and maintains its equilibrium in a medium of much higher temperature than its own. Finally, after a time varying from twenty-five minutes to three-quarters of an hour, the heart is accelerated in its action, and the respiration becomes more frequent; and these symptoms indicate that it is time to leave the bath.

One peculiarity of the bath is that it permits of the application to the affected part of sand of a higher temperature than to the rest of the body. In some cases this can be restricted entirely to the affected part. Rheumatic cases particularly enjoy them and are tempted to remain in them for a long time. They can so remain for upwards of an hour and repeat the bath daily; the fatigue is much less than with a complete bath, which is so energetic as not to bear repetition oftener than every two or three days.

To get rid of the sand which adheres with the perspiration, the bath is supplemented by friction with towels, or with brandy, or by water bathing or douches.

The characteristic of these baths is to determine a marked afflux of blood to the skin, which can be prolonged for a long time without inconvenience; so that in a general way it may be said that they are useful when it is desirable to stimulate strongly the circulatory system and thus to increase molecular change with the view of restoring the functions of the skin, and maintaining there the afflux of blood somewhat permanently (as in atrophies, paralyses, chronic rheumatism, articular rigidity, old white swellings, and the resolution of effusions).

OBSTETRICS AND GYNÆCOLOGY.

CREDE'S METHOD OF EXPRESSION OF THE PLACENTA.—In a paper which is a reply to certain objections to his method by Ahlfeld, Créde (*Abender gegen Ahlfeld's Berichte und Arbeiten, etc.*) gives a very clear description of the mode in which his method is to be carried out (Edin. *Clin. J.*). "Immediately after the birth of the child, the uterus must be controlled by the hand laid on it, and the third stage shortened in this way, that the natural contractions of the uterus are increased by gentle, soft friction by the hand, and the contractions which would otherwise be delayed are excited. As soon as the hand resting on the uterus feels a more powerful contraction, with which some blood escapes, and the uterus becomes distinctly smaller in the hand, the uterus must be grasped on all sides with the fingers of one or both hands, and with the fundus directed forwards and upwards, *gently* pressed downwards toward the hollow of the sacrum, rather towards the coccyx, *i. e.*, with the patient lying horizontal on her back—vertically downwards into the small pelvis. This pressure is only to be made during the acme of a pain." The placenta will, as a rule, be expelled with the third or fourth contraction, *i. e.*, five minutes or more after the expulsion of the child. If not expelled then we must delay expression till the contractions are renewed.

ON THE VALUE OF ALTERATIONS IN THE KIDNEY, CONSECUTIVE TO FIBROIDS OF THE UTERUS, IN THE INDICATIONS FOR AND THE PROGNOSIS OF HYSTERECTOMY. S. Pozzi, *Annales de Gynécol.* (*Medical Chronicle*) calls attention to the exceptional gravity which is sometimes given to diseases of the uterus, owing to the intimate relations of that organ with the bladder and lower end of the ureter. The uræmic affections which complicate cancer of the cervix have for a long time attracted the attention of pathologists. Serious lesions of the kidneys and ureters may be caused by simple prolapse of the uterus, owing to the interference it causes with the position and functions both of the bladder and of the lower end of the ureters. Other uterine displacements, such as retroversions and retroflexions, not infrequently occasion a certain degree of compression of the ureters, and it is easy to see that uterine myomata are quite capable of producing a still more injurious degree of pressure. The author inquires how far the kidney lesions, resulting from this pressure, affect the indications for, and prognosis of, the operation of hysterotomy. He sums up his conclusions as follows:

1. Compression of the bladder and ureters is a frequent complication of uterine fibroids, even when they are of moderate size, and is capable of inducing serious lesions of the kidneys (hydronephrosis, cysts, sclerosis, fatty degeneration).

2. When this compression affects the bladder it is readily recognized, but when it only affects the ureters it is scarcely possible to do more than arrive at a suspicion of the truth, until the appearance of albumin in the urine points to implication of the kidney.

3. Compression of the bladder or ureters ought to be regarded as a distinct indication of the need of operative interference, and may alone be sufficient to justify it.

4. In the case of hydronephrosis, the indication for operating is particularly pressing, on account of the danger which menaces the hitherto more or less sound kidney.

The treatment of these complicated cases will be rendered less formidable by dividing the operation into two parts, *i. e.*, by first performing hysterotomy, and attacking the cyst after the patient has recovered from the first operation.

5. The prognosis of hysterotomy is rendered con-

siderably more grave by the presence in the urine of albumin dependent on kidney lesion. The operation is indeed contraindicated if there be confirmed Bright's disease, but not if, as in a very interesting case detailed by the author, the quantity of albumen be only slight.

MEDICINE.

Prophylaxis of Diphtheria.—The Council of Hygiene of France has voted the following instructions. (*Jour. de Med. et de Chir.*):

Instructions upon the precautions to be taken against diphtheria:

Preservative measures.—Diphtheria is a contagious affection. All association of children with persons affected by it should be interdicted. No medicine is known to-day that is protective against diphtheria. It is important, particularly during the prevalence of epidemics, to nourish children as carefully as possible, and to see that they are not subjected to the prolonged influence of moisture and cold. It is very important to attend to all throat affections at their onset.

Measures to be taken when a case of diphtheria appears in a family:

It is indispensable to remove the case at once from all communication with other persons, especially children, who are not concerned in the treatment of the disease. Those who wait upon the case should not embrace the patient, inhale the breath or stand in front of the mouth of the patient during attacks of coughing. If they have any cracks or sores on the hands or face, they should cover them carefully with collodion.

They should be well-nourished, and go out into the fresh air several time every day, taking the precaution of first washing the hands and face with water containing to the quart about three teaspoonsful of crystallized boracic acid, or fifteen grains of thymic acid. They should be careful not to remain night and day in the room with the patient.

Measures of disinfection in the course of the disease or in the case of death:

1. The matters discharged by coughing or vomiting should be destroyed with the aid of a solution containing ʒjss of chloride of zinc or sulphate of copper to the quart of water. The soiled linen, clothes, etc., should be immediately washed in one of these solutions, and then plunged into water which is kept boiling for an hour at least. The spoons, glasses, etc., after being used by the patient, should be plunged into boiling water.

2. Whatever be the result of the disease, disinfection is indispensable. Fumigations with sulphur are to be conducted as follows: After closing all openings, an earthen pan containing hot coals is to be placed upon sand, and on it powdered sulphur to be placed proportional in amount to the size of the room (20 grammes, or ʒv, to the cubic metre). The chamber must remain closed for 24 hours, and then to be freely aired. The clothes, linen and other cloths used by the patient are to be disinfected by the solutions mentioned before being sent to the wash. The mattress should be opened and left in the chamber during the fumigation.

Idiopathic Convulsions of the Tongue.—Dr. O. Berger (Archives de Neurologie, *Jour. de Med. et de Chir.*) describes a singular affection of the tongue in a woman 28 years of age, without any particular antecedents, who was taken suddenly without prodromata, and while in very good health, with a sensation of laryngeal tension, situated immediately below the chin; when the tongue, which seemed to the patient to be so swollen as to fill the whole mouth, was affected throughout its length by an undulation. These symptoms constituted an aura which lasted a minute and a half. The organ was then irresistibly projected forward violently; it struck against the dental arches with such force as to produce a perceptible noise, or forced the tip between the lips. These rhythmic convulsions succeeded each other at the rate of fifty or sixty times per minute. Speech and deglutition are impossible during the attack, which causes no other disturbance immediate or consecutive. The duration of the attack is from one to two minutes; it is followed by fibrillary contractions, which last for several minutes. A cure was effected by the aid of tonics.

Dr. Berger cites another case, in a man 42 years of age; the same phenomena were repeated in his case, with the exception of the aura. There were brisk, involuntary and forcible projections of the tongue from the mouth many times in succession, even during the night. The patient becoming frightened, closed the jaws involuntarily and wounded the tongue frequently. No other accident occurred, and there was an absence of etiology.

Dr. Berger considered that there was a central excitation, either cortical or bulbar, of the hypoglossal nerve; it is similar to the idiopathic convulsions of the cremaster, also so inexplicable, which cause an extremely painful sensation of contraction. A cure was effected by means of injections of atropia and galvanism.

Tests for Albumin in the Urine.—Dr. Wm. Roberts, the well known authority on urinary and renal diseases, has an article on this subject in the *Medical Chronicle*, in which he premises that the urine in health contains appreciable traces of albuminoid matter of some kind. All urines contain a diastatic ferment, as shown in their power, to a low degree, of converting starch into sugar. All urines also contain mucin, and generally in sufficient quantity to be detectable by direct testing; traces of peptone and probably of other proteids. Now in testing the urine for albumin our object is to distinguish in kind and quantity the albuminoid matter which is morbid. A reagent which, like tannin, throws down every kind of albuminoid matter, even in the minutest traces, is, *ipso facto*, condemned. The new test for albumin, such as *picric acid*, *tungstate of soda*, *mercuric iodide*, and the *acidulated brine* test; all fall under this condemnation.

The most common cause of embarrassment in testing for minimal quantities of albumin is the pres-

ence of mucin in the urine. The new tests give a reaction in the mucin which is identical with that produced by albumin. Nitric acid wholly avoids this difficulty, and the boiling test avoids it almost as completely. When a urine containing both albumin and mucin is tested, by the *contact method*, adding the reagent by means of a pipette with a tapering point, with nitric acid, the albumin is thrown down just above the line of junction of the two fluids, while the mucin is brought into view towards the upper part of the column of urine, where it gradually forms a diffused haze, quite distinct from the opalescent zone at the line of junction. Sometimes the mucin haze is seen collected into a more or less distinct zone or ring which hovers toward the middle or upper part of the column of urine. When this happens a curious distinction may be observed between the two zones. The mucin zone is broken up into a diffused haze by a slight agitation, as by twirling the test tube between the fingers; but the albumen zone is remarkably steadfast, and resists unbroken a considerable amount of agitation.

When an opalescence in a specimen of urine is produced by the other tests mentioned, the observer cannot (without further testing) tell what it means; but when an opalescence is produced by nitric acid at the time of junction of the two fluids—it means albumin and nothing but albumin. For this reason nitric acid must be regarded as the albumin test best adapted for clinical work. If the observer waits fifteen to thirty minutes at the most, so as to allow time for a possible reaction to develop itself, nitric acid becomes a very sensitive test, and falls very slightly behind the most sensitive of the less reliable tests.

If it be desired to push the testing beyond the utmost sensitiveness of nitric acid, or to arrive at conclusions more rapidly, the heat test supplies the deficiency. When the heat test is performed with certain precautions, it transcends in delicacy all other albumin tests. The chief point to be attended to is the due acidulation of the urine; too much acid or two little acid equally vitiates the delicacy of the reaction. A test tube is charged with about three drachms (10 c.c.) of urine, and to this is added a single drop of acetic acid (B. P.). The upper half of the column is then heated to boiling. If albumin is present, even in minimal quantity, the upper boiled portion of the column will show opalescence, in contrast with the lowest half, which remains unchanged. If the urine be alkaline, it should first be carefully neutralized by adding successive drops of acetic acid until the litmus paper shows a distinct but slight acidity, and then the final single drop of acid is added before boiling. Even if the urine possess its natural acidity, it is better to add a drop of acetic acid if you want to bring out the maximum sensitiveness of the boiling test. The mucin reaction is to a slight degree intensified by heat, but only interferes in the case of a urine containing much mucin with a trace of albumin. When the mucin haze is very pronounced and rapidly developed, the quantity of mucin present is sufficient to lower slightly the value of the boiling test. When this is the case, Dr. Roberts adds to the urine a fourth of its bulk of a saturated solution of common salt. This addition prevents the development of a mucin reaction on boiling, but does not interfere in the least with the albumen reaction.

A mixture of one volume of strong nitric acid with five volumes of a saturated solution of sulphate of magnesia makes an admirable albumin test. It forms a water-clear solution, which does not fume, nor stain nor burn the fingers, or garments. Its specific gravity is 1–440, so that it sinks with rapidity through a column of urine in a test tube, and is suitable for testing by the contact method. It is distinctly more prompt and sensitive as a test than the pure acid, and its action in regard to albumin, mucin and peptone is similar. It acts less strongly than the pure acid on the coloring matter of the urine, and is not prone to cause disengagement of gas from destruction of uric acid. One of its recommendations is that it can be carried about in a corked bottle with considerable less risk of a catastrophe to skin and garment than the strong acid.

THE DRY DIET TREATMENT OF ULCER OF THE STOMACH.—M. Debove in *Le Progres Medical* points out certain risks in the ordinary milk treatment of ulcer of the stomach: The ingestion of so much fluid, viz.: five to seven pints of milk in the twenty-four hours, into a stomach with atonic mucous membrane is apt to produce almost fatal dilatation, and the stretching of the ulcer to provoke hæmorrhage and perforation. Indeed, all excessive dilatation of the stomach is dangerous, while contraction is favorable. M. Bouchard for a long time in this disease has given a dry diet, consisting of finely divided nutritious food—such as meat powders—with not more than three-quarters of a part of pure water during the twenty-four hours, and under this regimen he has seen the morbid dilatation of the stomach diminish or disappear. M. Debove's plan is as follows: The stomach is first carefully washed out, but the operation is to be instantly stopped if the returning liquid is tinged with blood. Then the patient is to take three meals daily, each consisting of meat powder twenty-five grammes, bicarb. of soda ten grammes, and, as the mixture is not very palatable, it is well to introduce it into the stomach by a siphon. To this dry food which represents 300 grammes (about ten ounces) and 30 grammes (about one ounce) of sod. bicarb. per diem, one litre (nearly a quart) of milk is added, which is to be drunk in small quantities at a time. M. Debove's object is to annul the action of the gastric juice, and thus stop digestion and favor the healing of the ulcer.

The albuminoids are not converted into peptones in the stomach, and their alkaline reaction is very favorable to their digestion in the intestine. Perhaps, too, the soda is *directly* beneficial to the ulcer. Two severe cases of gastric ulcer, accompanied with very painful crises, by hæmorrhage, and by great emaciation, which had resisted all treatment, were quickly cured by the above treatment of Dr. Debove.—*Medical Chronicle.*

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

The Editor of this Journal would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, NOVEMBER 8, 1884.

Microbes and Suppuration.—In a previous editorial we called attention to the experiments of Mr. Cheyne on the production of suppuration by bacteria.

Since that time he has made two further reports upon the same subject. Incidentally he has elicited several interesting facts.

In order to test the degree of virulence when grown away from oxygen; in addition to the experiments described in our former editorial upon the growth of micrococci in eggs, Mr. Cheyne cultivated them in various gasses.

He found, contrary to the views of Dr. Ogston, that they grew best in oxygen gas, next in air, and feebly and slowly in hydrogen and carbonic acid gas.

The virulence of the micrococci did not seem to be materially modified by the atmosphere to which they were subjected.

Another point of interest elicited by one series of inoculation experiments, was the fact that the micrococci appeared to be eliminated from the blood through the kidneys. They were injected directly into the veins of the rabbit. When three-quarters of a cubic centimetre or less of the fluid in which the micrococci were growing was injected, death did not occur, but larger amounts were fatal.

In one series of experiments with micrococci obtained originally from pus taken from a case of incision of the knee joint, micrococci were found only in the kidney of the rabbits into which the cultivation fluid had been injected. The most careful search did not show them in the blood, or any other internal organ except the kidney.

The lesions in this organ consisted in masses of micrococci, and of inflammatory infiltrate around them. These lesions were very numerous in the pyramids and less toward the junction of medullary and cortical substance, and rare in the cortex itself. The first effect of the mass of micrococci is the destruction of the tissue immediately around it. Therefore on staining these specimens the micrococci appear deeply stained; around them is a white ring, and outside of this a ring of inflammatory exudate.

After a time the micrococci spread from the centre into the clear ring, and the leucocytes from without inward. Finally the mass of organisms is completely broken up and is replaced by leucocytes. The micrococci by degrees disappear entirely; the white cells become absorbed or organize fibrous tissue.

It was difficult to determine whether the masses of micrococci formed in the uriniferous tubules or blood-vessels. Mr. Cheyne believes, however, that in the great majority of cases they formed in the tubules, although possibly some of earlier formation may have been in the blood-vessels.

In another series of experiments, made with micrococci taken from wound made in excision of the breast, after cultivation and injection into the veins they were found as plugs in the kidneys, walls of the heart, liver, lungs and spleen. The micrococci in the kidneys were in the blood-vessels, not in the uriniferous tubules.

Thus we see that when micrococci of pure cultivations are injected into the veins of animals different results follow, depending upon the source, or more probably the nature of the microbe.

Another conclusion which Mr. Cheyne draws from these experiments is, that "organisms not capable of growing in the blood may yet produce serious results by growing in the excretory canals."

Dr. Ogston has asserted that all suppuration is produced by microbes, except in cases of burns or blisters. Mr. Cheyne admits that micrococci are always found in acute abscesses, and are probably the cause of the suppuration, although perhaps not the primary cause of the inflammation. Still he shows that suppuration can be produced without the agency of these bodies.

The most conclusive experiments upon this point were made by placing within a thin glass tube a sterilized mixture of olive and croton oil. The tube was then sealed and inserted into the muscular tissues of an animal, under the strictest antiseptic precautions. The incision which was made was allowed to heal, when the tube was broken, thus permitting the irritating contents to escape into the tissues. Abscesses were formed containing pus, but no microbes.

At the time the oil-tube was inserted into the tissues, sterilized meat infusions were inoculated with the same sterilized oil mixture. In these, also, no micrococci developed.

These papers of Mr. Cheyne are interesting, both on account of the value of his own experiments, which we have briefly described, and for the conclusions which he adduces both from them and the work of others.

HYDROCHLORIDE OF COCAINE — A LOCAL ANÆSTHETIC FOR MUCOUS AND SUBMUCOUS SURFACES.— The news wafted across the water from the Ophthalmological Congress in September last by Dr. H. D. Noyes, of New York, of the remarkable powers of the hydrochloride of cocaine as an anæsthetic to the mucous and subjacent tissues of the eye, has excited the attention of physicians all through the country. The information sent to the *Medical Record* by Dr. Noyes was in substance as follows: Dr. Koller (Dr. Lucien Howe, in his letter to the *American Jour. of Ophthalmology*, calls him Dr. Carl Carson), of Vienna, gave to Dr. Brettauer, of Trieste, a 2 per cent. solution of hydrochloric of cocaine for exhibition as a local anæsthetic for the eye. He had only lately become acquainted with its properties relative to the eye, and began his observations from a knowledge of its anæsthetic influence on the vocal cords. The solution was used before the Ophthalmological Congress, and after the instillation of two drops of a 2 per cent. solution at an interval of ten minutes, the cornea, which was previous to the use of the solution of normal sensitiveness, could now be touched and even indented without any complaint of pain. Moreover, a speculum was introduced, the lids distended, the conjunctiva seized with the forceps, and the eye moved in any direction without any complaint whatever.

No sooner was this news received than active workers were eager to utilize its qualities, and with the exception of two reporters in the *British Medical Journal*, the record hitherto attributes to it such virtues that it promises to practically obliterate the use of ether from the ophthalmic surgeon's practice, except in cases in which the education has been so deficient that the patient screams at the sight of an instrument. To counterbalance the testimony of the two reporters in the *British Medical Journal* referred to above, it should be added that Mr. Nettleship, ophthalmologist at St. Thomas's Hospital, and of great experience, reports the most complete success with its use; and in New York, Drs. Agnew, Moore, Minor and Knapp, as well as several others through the conntry, have all put it to the test by performing under its influence the various operations of extraction, tenotomy, removal of pterygium, etc., etc., with the most gratifying results. A 4 per cent. solution seems to be preferred to the 2 per cent.

With such a sudden revelation of remarkable and useful properties we naturally turn to literature and memory for some of the foreshadowings of its approach. We are told by Dr. E. R. Squibb that cocaine, although differing chemically from caffeine and theine, produces similar physiological effects, but that the cocaine is about six and a half times as strong,[1] but whether this new application of the properties of cocaine will modify his views or not will, we have no doubt, be revealed later. The common conviction among the laity of the value of tea as an application to the eye may lead us to suppose that even in this question of anæsthesia the similarity of the physiological effects may hold good. Stillé and Maisch say: Tea is applied in China as a wash to the eyes, ulcers and wounds of all kinds, and Lettsom is said to have shown that the volatile substance which may be distilled from an infusion of tea was capable of "paralyzing the hinder legs of the frog."

Robertson says, in his Eléments de Thérapeutique et de Pharmacologie, published in 1877, when a good quality of coca leaves are chewed one realizes a certain anæsthesia of the tongue and buccal surfaces. He further explains the well authenticated capacity of those who use the coca leaves habitually, to endure hunger, as arising from the anæsthesic condition of the mucous surfaces which unanæsthetized are the seat of the pain of unappeased hunger. His observations were made on a student of his in R's laboratory. The experiments of Mr. Dowdeswell in the physiological laboratory of University College, London, more or less contradict these statements, but the probability is that Mr. Dowdeswell worked upon very inferior samples of leaves. Indeed, Dr. Squibb has lately ceased to make the fluid extract simply because it was impossible to get a creditable article in the market. This is deplorable when we consider the large amount which is annually disposed of. In 1877 Rabuteau says that the annual amount of money exchanged for coca leaves was about 25,000,000 francs; and Dr. Squibb says that at present it amounts to $10,000,000, the amount by weight being 40,000,000 pounds.

The average yield of cocaine from the leaves of good quality seems, from the observations collated and made by Dr. Squibb, to be about 0.25 per cent. All the reports hitherto seem to speak of the substance

[1] Ephemeris, July, 1884, p. 605.

used as a definite hydrochloride or muriate of cocaine. It would seem, however, from the way in which it is used, to be questionable whether the salt is in solution as a definite hydrochloride or not.

Rabuteau says: The action of acids on the alkaloid cocaine is somewhat complicated; for according to Loessen hydrochloric acid decomposes it and develops from it benzoic acid and eczonine, and that with the latter base the hydrochloric acid forms a salt. Stillé and Maisch say cocaine when prime, is in colorless prisms of a strong alkaline reaction, has a bitterish taste, produces a transient numbness on the tongue, and dissolves in 704 parts of water and in much less alcohol and ether. They also say that strong hydrochloric acid decomposes it into methylic alcohol, benzoic acid and eczonine. Squibb in his investigations speaks of the cocaine as a greenish oily substance in which there was no appearance of a crystallized alkaloid. A sample of the solution in use which we have had the pleasure of seeing, gave on evaporation no sign of crystallization but presented the appearance rather of a gum.

The testimony in favor of its use as an anæsthetic for mucous surfaces is so great that its field of usefulness will certainly extend far beyond the domain of ophthalmic surgery, and the consequent demand will probably stimulate the producers to more care both in cultivation and transport.

American Public Health Association. — The third day of the recent annual meeting of this Association in St. Louis was occupied chiefly in listening to papers on Cattle Diseases, and especially on "Texas Cattle Fever," by Dr. W. B. Conery, of Missouri, and Dr. A. M. Partridge, of Indiana; on Malaria Protectives, by Dr. G. B. Thornton, of Tennessee; on The Importance of Water Analyses, both Chemical and Microscopical, by Dr. Charles Smart, of the U. S. Army, and Thad. M. Stevens, of Indiana; on The Pollution of the Waters of the Upper Ohio, by Dr. J. E. Reeves, of West Virginia (which may be found in full in this number of the Journal); on The Relation of Depth of Water in Wells to the Causation of Typhoid Fever, by Dr. H. B. Baker, of Michigan; and The Use of Polluted Well Water in the Manufacture of Soda Water in St. Louis, by Dr. Frank R. Rye, of Missouri; on The Disposal of Sewage, by Dr. S. S. Herrick, of Louisiana, and Dr. W. J. Harris, of Missouri; on Disease Germs, by Dr. Geo. M. Sternberg, of the U. S. Army; and on The Bearing of the Discovery of the Tubercle Bacillus on the Public Health, by Dr. L. Bremer, of Missouri.

All these papers contained some matter of value, and especially those of Drs. Thornton and Sternberg, yet we have been able to cull but little that is not already familiar to the readers of the Journal. On the fourth and last day of the meeting the attendance of members was very small. Some time was devoted to the transaction of miscellaneous business, and some additional papers were read.

Officers Elected.—The Advisory Council recommended that the following gentlemen be elected officers of the Association for the year: Dr. James E. Reeves, of West Virginia, President; Hon. Erastus Brooks, of New York, and Dr. Henry B. Baker, of Michigan, Vice-Presidents; Dr. J. B. Lindsley, of Tennessee, Treasurer; Dr. H. P. Walcott, of Massachusetts, Dr. Charles Smart, of the United States Army, Dr. Geo. B. Thornton, of Tennessee, Dr. D. W. Hand, of Minnesota, Dr. Gustavus Derron, of Louisiana, and Dr. H. B. Holbeck, of South Carolina, Executive Committee. The Council further recommended that the next Conference of the Association be held at Washington in December, 1885, and that the thanks of the Association be tendered to the Government of the Dominion of Canada and the Ontario Board of Health for their kind invitation to hold the next meeting in Toronto, and that the Secretary be instructed to decline the invitation. The Conference unanimously approved of the recommendations of the Council.

An Advisory Council of one from each State was also appointed, and after adopting the usual complimentary resolutions the Association adjourned. Although the attendance of members during the annual meeting was not as large as we had anticipated, the papers read and all the discussions related more exclusively to the appropriate objects of the Association than at previous meetings, and the result will be a material advancement of the public health interests, and the promotion of greater harmony among the workers in that field throughout the whole country. The municipal authorities, citizens and profession of St. Louis deserve much credit for the liberal hospitalities extended by them to the members of the Association during the week of their sojourn in that city.

The Pullman System of Epuration of Sewerage.—Having received several inquiries in regard to the details of the system of sewerage and epuration in operation at Pullman in the vicinity of this city, we answer as follows: The population of the town is

about 8,000. The sewerage matter is received into a system of deep laid sewers through which it is conducted into a large cesspool, from which it is pumped through a large cast iron pipe to the farm, a distance of 15,500 feet (about three miles), where it is received into a tank, screened through ½ inch screen to separate out the coarser matter contained in it. From the tank it is distributed over the farm through clay pipes laid four feet below the surface, with hydrants every 400 feet to carry it to the surface over which it is allowed to flow.

The farm has 140 acres capable of being irrigated through these pipes and hydrants, and takes care of the whole sewerage of the town with ease and profit.

CHOLERA INVESTIGATIONS.—A recent report of the French Commission for investigating the nature of cholera in Marseilles, shows an entire failure to produce cholera in rabbits or other animals by a great variety of experiments with the comma-bacilli, both as found in the intestines of cholera patients and by cultivation, and consequently it affirms the non-contagiousness of that disease.

The report describes a peculiar condition of many of the blood-copuscles, which the Commission regard as the essential pathological condition in epidemic cholera.

OVARIOTOMY WITH EXTIRPATION OF ONE KIDNEY.—We are informed that on Monday, Oct. 26, in presence of the medical class at Ann Arbor and a number of medical practitioners, Prof. Donald Maclean, of Detroit, extirpated the left kidney, both the ovaries and a large piece of the omentum from a married woman 27 years of age, who proved to be in an early stage of pregnancy.

So far, now one full week, the patient has done well, and the case promises to be a complete success. The kidney and both the ovaries were cystic, the former being very large.

MUNIFICENT BEQUEST.—The late Countess Bose, of Cassel, by her will made a legacy of $190,000 to the University of Berlin, for the benefit of poor students of medicine.

DR. LOUIS A. DUGAS, one of the most learned and eminent physicians of Georgia, died at his home in Augusta, on the 19th ult.. at the ripe age of 78 years.

STATE MEDICINE.

PRACTICAL RECOMMENDATIONS FOR THE EXCLUSION AND PREVENTION OF ASIATIC CHOLERA.

BY JOHN H. RAUCH, M.D.,
Secretary Illinois State Board of Health.

Presented to the Conference of State Boards of Health in St. Louis, Oct. 13, 1884.

MR. CHAIRMAN:

A grave responsibility rests upon those charged with the protection of the public health at the present time. For the past six years—ever since the memorable fever-summer of 1878—the country has been free from any serious and widespread epidemic disease. Small-pox, which prevailed from 1880 to 1883, has been successfully combated, and its ravages confined to proportions which are insignificant when compared with many other epidemics. Hundreds of thousands of unprotected immigrants were landed on our shores during those four years; but the Immigrant-Inspection Service, inaugurated in the spring of 1882, thenceforth rendered them comparatively harmless, by securing an improvement in their sanitary status through the effect of the Service upon the work of steamship surgeons during the voyage, and upon the methods at quarantine on arrival; as well as by its own sanitary surveillance of the immigrants from the port of arrival to the point of ultimate destination or distribution in the great interior—such surveillance consisting of repeated inspections, vaccination of the unprotected, systematic observation of suspicious sickness, prompt isolation of discovered small-pox or other contagious disease, and the enforcement of the measures necessary to prevent its further spread. Among our own people outbreaks of the disease were promptly suppressed wherever sanitary authority had control, and well-defined methods of dealing with the contagion were enforced. On the other hand, while we have fought small-pox and conquered it, we have been spared from any serious conflict with yellow fever. Nor have other diseases prevailed to an unusual extent, as they so often do in the absence of an epidemic. On the contrary, the average annual death-rate has been low, and during the past year remarkably so.

This very fact should be, in itself, a warning to the sanitarian. It means a survival of a large number of persons who would have been carried off had the non-epidemic diseases maintained their usual severity. It means the accumulation of susceptible material ready for the prey of epidemic contagion, whenever such contagion shall be introduced under conditions favoring its propagation and spread. It is one of the most important factors in determining the extent and severity of the next epidemic, whatever that may be and whenever it may visit us.

But, for a period of six years, sanitary effort and sanitary authority have had no unusual demand made upon them, or at least no demand which the public recognizes as unusual. And during these six years the interest in sanitary matters which was aroused by the epidemic of 1878, and which, among other causes,

led to the formation of many of the present State Boards of Health, and to the creation of the National Board, has gradually diminished as the memory of the epidemic faded away, or was displaced by other and newer topics and occurrences.

One of the chief reasons why sanitary work fails to receive continuous and adequate consideration and support from the public and from the legislator, is that, in its very essence, it is a work of prevention; and just in proportion to its own success and thoroughness does it destroy the obvious and palpable reasons for its continuance. When an epidemic actually exists, and industry and commerce are paralyzed in its presence, and the death-roll swells from day to day, there is then no question in the public mind about the desirability of sanitation, no hesitation as to making appropriations for its support, or enacting legislation to increase its efficiency.

But Rabelais told us, nearly four hundred years ago, what always happens whenever the devil gets well. And Congress adjourned its last session, not only without doing anything additional for the protection of the public health, but after substantially annulling and rendering inoperative the only national legislation of any real value which we possessed.

However, there is a revival of public interest in these matters within the past few months, due to the spread of Asiatic cholera in Southern Europe; and it is our present duty, as sanitary officials, to utilize and direct that interest to the securing of adequate legislation and intelligent action for the prevention of the introduction of the pestilence to our shores, and its limitation, should it unfortunately effect an entrance. Much has already been done in the latter direction, by the action of State and local health authorities in pushing the sanitary education of the people through circulars, memoranda and other modes of appeal. Since the second of July last such circulars from sixteen States and from the Dominion of Canada have already come under my notice. In many instances, sanitary inspections of municipalities, public institutions, jails, almshouses and kindred establishments, have been ordered and carried out, with the view of securing the abatement of nuisances and remedying defects in the sanitary conditions thence disclosed. An amount of sanitary work has been thus already accomplished which, aside from any consideration of cholera, will be of great value in reducing sickness and mortality from the entire list of diseases which are caused or favored by filth and other unsanitary conditions. As a recent number of the New York *Medical Record* says: "There is no doubt that the extra cleanliness produced by the cholera scare will effect a saving of life from other filth diseases far in excess of the mortality from the cholera itself, unless, indeed, it should spread beyond all expectation."

This work should be continued, and the measures which have already been inaugurated, looking to improvement in general and local sanitation, should be pushed with unabated vigor during the favorable weather we may yet have; and they should be resumed with redoubled energy whenever climatic conditions permit. It is not necessary to go into details as to this work; we are familiar with its requirements and its necessity. It is a work of continuous interest and importance, whether cholera should come or not.

With theories and speculation as to the causation of cholera, or as to its mode of diffusion and epidemic spread in the countries of the old world, this conference is not concerned. It is enough for us to know, as the basis of our action, and the foundation for practical recommendations and advice, that the disease is not indigenous to this continent; that it is an exotic, and has never yet visited us except by importation, and that only after ample warning.

It may be entirely true that, if all our food supplies were wholesome, and our water-supplies not only unpolluted but unpollutable; if sewage and refuse disposal were prompt and complete; if our cities, towns and villages were all models of sanitary perfection, and their inhabitants free from predisposition or susceptibility, acquired or inherited—in short, that if there were no ignorance, nor poverty, nor filth, nor infirmity in the land, we might dispense with precautions against the introduction of disease.

But the sanitary millenium is not yet, and we are hardly likely to witness its advent before next spring or summer, no matter how earnestly we may labor for it. So, for the present, at least, as a practical sanitarian accustomed to deal with conditions as they actually exist, I think the wise thing to do in respect of cholera is to resist the first beginnings—*obsta principiis*.

It is no doubt well to be prepared to expel the midnight burglar from one's dwelling; it is better to keep him out by locks and bolts and watchful patrols. If people must live among combustible material it is a prudent thing to forbid smoking on the premises, and to be careful about matches and other incendiary agencies, the contagion or contact of which may kindle a conflagration.

Until we can very materially change the conditions which cause considerably over one-half the annual mortality, it is our simple duty to adopt whatever measures promise a fair degree of success in excluding the foreign epidemics. Such typical filth-diseases as typhoid fever and diphtheria carry off sixty odd thousand people every year; and during the census year ten principal groups of more or less preventable diseases caused over 470,000 out of the total 756,000 deaths in the United States.

With such a showing it is simply nonsense to talk about relying upon sanitary measures alone to combat a disease like cholera. Let us push sanitation by every means in our power, and to the fullest extent. Not, however, with any hope that we can effect such a sanitary revolution in a few months as would prevent cholera, if once introduced, from spreading as an epidemic in hundreds of localities, but rather in the knowledge that every sanitary reform tells permanently and continuously on the whole body of preventable diseases; and that to the extent and measure of such reforms are the conditions made more favorable for the exclusion and prevention of all epidemics.

That cholera *will* come, it is our duty to assume. Mindful of the history of every previous cholera epidemic, we must accept as beyond a doubt—if ex-

perience is worth anything—the certainty that the disease will be brought to our shores. It always has come, sooner or later, whenever, since 1832, the contagion has obtained such a foothold in Europe as it now has.

Sooner or later, it is sure to come, and we cannot tell how soon. Cholera was brought to Marseilles in the early part of June, 1865, from Bombay via Mecca, by pilgrim-steamers conveying Algerine pilgrims returning home from the feast of sacrifices at the "holy city," and spread so rapidly that, during the month of October, it caused between four and five thousand deaths in Paris. On the 12th of that month the steamer Atalanta left Havre with over 600 cabin and steerage passengers, all of whom had been in Paris, and on her arrival in New York bay she had had 102 cases of cholera and 23 deaths. So that the disease was brought from its endemic home in India, by way of Mecca, Marseilles, Paris and Havre, to New York in less than nine months.

It is probable that we do not know how widely spread the disease is upon the continent, nor what places and ports are infected. The London *Lancet* recently stated that it has transpired that there were deaths from Asiatic cholera in Marseilles during 1883, and Dr. Albert Drysdale, health officer at Mentone, writes to that journal corroborating the statement from his own personal observation, having been taken to see a case in October, 1883, by a medical friend. Attendants, nurses, and all others cognizant of the facts were sworn to secrecy. Still more recently French naval officers have frankly stated that cholera existed on their vessels at Toulon long before the fact was made known last spring. In 1873 the existence of cholera was concealed in Austria on account of the great Vienna Exposition, and although the disease is now known to have been spreading from place to place from early in the spring, it was not until midsummer that any warning was sounded of an epidemic which caused 240,000 deaths in the Austrian dominions alone.

I repeat that we may not know how widely spread the disease now is on the European continent, and that we do not know how soon its arrival on our own shores may be announced. It is not probable, however, that it will reach us before next spring, and we may pretty safely count on some months yet in which to push our preparations to meet it and to resist its advance.

I began my remarks with the statement that a grave responsibility rests upon the sanitarian at the present juncture; but there is an equally weighty obligation resting upon the public and upon our legislators. I undertake to say, as a sanitary official of nearly 25 years' experience in the practical administration of sanitary matters in city, State and nation, and after more than a third of a century of study and observation of the disease, beginning in 1850—that Asiatic cholera may be practically excluded from the United States: That it is preëminently a quarantinable disease. That, with a judicious employment of agencies which have already been tested, Asiatic cholera may be quite as successfully dealt with in this country as small-pox, and probably more so than yellow fever.

Whether cholera shall be excluded—whether the means and agencies necessary to deal with it shall be supplied—are questions which the public must answer through their representatives in Congress, in State legislatures, and in their municipal councils; and I propose in the remaining portion of these remarks to endeavor to point out what means and agencies are necessary to the end in view; premising that, in their consideration, it should be remembered that sanitary science is comparatively modern; that the sanitary organizations of the present day had no existence in the days of the great epidemic visitations of cholera in this country; that within the past few years there has been a rapid and wide-spread diffusion of sanitary knowledge among the people; and that, even so lately as the last cholera epidemic in the United States, that of 1873, no organized effort was made to prevent the importation of the disease, and practically little or nothing done to prevent its extension; certainly, no such measures have ever been employed, either to prevent its introduction or to limit its spread, as we have recently successfully employed against small-pox and yellow fever.

Asiatic cholera—so far as this country is concerned—is preëminently a quarantinable disease. Unlike the virus of small-pox, unlike the poison of yellow fever, the morbific potency of the cause of Asiatic cholera—whatever that cause may be—is sharply limited as to duration. Failing to find suitable conditions for its growth and reproduction it *dies out.* No single case, no single shipload of cases ever succeeded in establishing an epidemic in this country. I know this is contrary to the received opinion and popular belief; but I ask you to follow me in a brief resumé of the facts concerning each epidemic, beginning with 1832. That epidemic is attributed to the ship Carrick, which arrived at the Grosse Island quarantine station in the St. Lawrence river on the 3d day of June, 1832. But six days before that, the ship Elizabeth had arrived with 200 immigrants on board, and having had 20 cholera deaths during the voyage. Fourteen days before the Elizabeth the Robert had arrived, with 10 cholera deaths; and sixteen days before the Robert—that is on the 28th of April, 36 days before the arrival of the Carrick—the ship Constantia arrived, having had 29 cholera deaths during the voyage. These are all known to have been cholera-infected vessels, and their hundreds of passengers were known to be cholera-carriers; but these passengers are only a small fraction of the 30,000 immigrants who arrived in the St. Lawrence during the spring and early summer of 1832, from the same infected localities and sailing from the same infected ports as the passengers of the Constantia, the Robert, the Elizabeth, and the Carrick. And yet they failed to develop a single case in Canada or elsewhere until the 8th day of June. The introduction of the disease into New York is attributed to Canada; but the same class of immigrants from the same localities in Europe, were arriving in New York during the spring of 1832, as those in the St. Lawrence. And yet no case of the disease occurred in the city or vicinity until June 13.

In 1848, the noted cases of the New York and the

Swanton occurred—the former carrying cholera into New York, the latter into New Orleans; and to them is attributed the epidemic which, in the two succeeding years, spread from the Atlantic to the Pacific and from Canada to the gulf. But the importation by the New York, though causing fifty deaths at quarantine, resulted in only two cases in New York city, and it was not for months afterwards—not until the 11th day of May, 1849, and after the arrival of several other ships with cholera on board, that the first case appeared in the city, and the disease began to spread from that point. On the other hand, immigration from cholera-infected districts of Europe into New Orleans had been continuous for months before the arrival of the Swanton—the two vessels immediately preceding her, viz.: the Gutenberg and the Callao, having lost 25 passengers from cholera.

From this time until the close of what is generally known as the epidemic of 1854, but which was really only a continuation of the epidemic of 1848–49, there were continual importations of cholera-carriers, either in the persons of those who had been exposed, or in cholera-infected articles; in November, 1853, for example, no less than 28 vessels, on which 1,141 persons had died of cholera, arrived at the port of New York alone.

The case of the Atalanta, in 1865, has already been noted; but it should be further observed that there were three other arrivals from Havre soon after, and on the last two of these there were deaths from cholera during the voyage, but the disease got no nearer the city than Ward's island, and by the 20th of December had entirely ceased. In 1866, cholera was carried into Halifax by the steamer England, which vessel afterwards proceeded to New York, where, on the 20th of April, she landed 891 passengers and 116 officers and men, having lost 316 by cholera. There were eight cases and five deaths among those who had to do with the vessel at Halifax, but no other extension of the disease, and none in New York. Two days prior to the arrival of the England, the Virginia had arrived at New York quarantine, having had 116 deaths on the voyage; and before the first death of the epidemic of 1866 had occurred, namely, May 2, there had been nearly 3,000 arrivals in New York of individuals "who had been directly exposed to the infection of cholera at Liverpool, on shipboard, and at quarantine." Notwithstanding this, so slowly does cholera spread, except under favorable conditions, that there had been only 21 deaths from the disease up to July 8; and it was not until the first week in July that the disease appeared in Brooklyn, although there were frequent arrivals of cholera vessels during all this time.

The epidemic of 1873 was preceded—*fourteen months before the first case of the epidemic occurred*—by the arrival of the Franklin at Halifax, November 6, 1871, in distress, having lost 28 of her steerage passengers by cholera. Five cases, with three deaths, resulted from her on shore, but the disease did not spread, either in Halifax or vicinity. The vessel proceeded to New York, where she arrived November 12, 1871, having lost 11 more of her passengers, and having 72 cases then on board. But no epidemic followed. During 1872 there were numerous arrivals from cholera-infected ports, and the disease appeared on the island of Cuba and in Jamaica in the autumn of that year. During December, 1872, and January, 1873, there arrived in New Orleans a total of nearly 2,000 immigrants from cholera-infected districts of Europe. And yet it was not until the 9th day of February, 1873, that the initial case of this epidemic occurred in the city of New Orleans.

No single case of cholera, no one shipload of cases has ever yet sufficed to establish an epidemic of Asiatic cholera on this continent. It has only been after repeated importations of the contagion in the persons of thousands of immigrants and in their infected baggage and household goods, that it has effected a lodgment, and has reproduced itself and multiplied into an active epidemic agency.

Hence my first proposition, that, for this country, the disease is essentially and preëminently a quarantinable disease, and may be practically excluded. If it were true of the cholera poison, as it is of the smallpox contagion, that favorable conditions for its spread exist wherever a susceptible individual is found, without reference to the sanitary surroundings, we should have no such history as I have just recited,—a history of repeated importations extending over months and months before it succeeded in establishing itself.

It will not do, however, to construe this tardy establishment of the contagion into an excuse for delaying measures of preparation—neither those for its exclusion, nor those for its limitation and suppression, should we fail to exclude it. Cholera is a capricious disease, and the history of its various pandemic extensions throughout the Old World affords occasional instances of a single introduction sufficing to inaugurate an epidemic. Fortunately, the same conditions do not, generally, obtain with us, except in a few localities. Populations are not so dense, nor are dwellings so saturated with crowd-poison, nor is the soil so thoroughly polluted by long occupancy. Where these evils exist they should be remedied forthwith to as great an extent as practicable, in order that, among other good results, the conditions favorable for the growth and multiplication of the cholera-poison may be destroyed or limited.

It is charged that quarantine is powerless to prevent the extension of epidemic diseases; that, in the language of John Simon, "a quarantine which is ineffective is a mere irrational derangement of commerce;" and that to be effective, it must be of such a nature as to absolutely prevent all intercourse with the infected country. All this may be true of Great Britain, owing to her geographical position, to her extensive commerce and its exigencies, to her dependence on other countries for her food supply, and to other conditions which do not obtain with us. It may also be true of Europe generally. There a narrow strait or sea, a river, a mountain chain, or merely a territorial boundary line, with its custom houses and passport system, defines the limits to be guarded, and forms the only physical barrier between the quarantiner and the quarantined. Here, the whole width of the Atlantic intervenes between us and the infected country. There, cordons and

quarantines mean privation, misery and suffering, and, ultimately, starvation. Here, the nation is self-supporting, and could exist unaffected in almost all her material interests. There, it may be true, as alleged, that a quarantine of exclusion is impossible of execution, and that the attempt to maintain it does more harm than good, in leading to numberless contraband practices by which the disease may be introduced in unsuspected ways.

None of this is true when applied to the exclusion of Asiatic cholera from this country; while to accept the statements unquestioned would cause vigilance to be relaxed, would invite contagion to our shores unimpeded, and would finally throw upon individual communities the burden and the responsibility of fighting the disease at an immense disadvantage—that is, of fighting it at home and from many quarters, instead of on the outer lines and from only one direction.

With the necessary agencies of an effective quarantine provided in due season, it would not require any very great degree of courage to promise the practical exclusion of the disease.

These necessary agencies may be thus stated in their natural order of sequence:

First.—Timely and trustworthy information of the existence of the disease in countries and at ports having commercial relations with our own, including telegraphic advices of the departure of vessels from such ports for ports in this country. Section 1752 of the Revised Statutes of the United States gives the President authority to use all diplomatic and consular officers for "the communication of information * * * conducive to the public interests;" and instructions have already been issued under this authority.

To properly utilize this information, in fact, in order to fully secure the information, there needs to be—

Second.—A national health organization, representing the natural sanitary divisions of the country; endowed with adequate authority; supplied with means commensurate with the duties imposed upon it; and with the power to call upon any other branch of the public service of the United States for legitimate assistance and coöperation. With some modifications the present National Board of Health would satisfactorily meet this indication. In my judgment its membership should be enlarged so as to more perfectly represent the natural sanitary areas, and its members should be familiar not alone with the sanitary features of their respective districts, but equally they should be identified with the commercial, business and industrial interests.

Under this national health organization there should be extended and perfected—

Third.—The system of Refuge Stations projected by the National Board of Health. With two or three exceptions, no port in the United States has adequate facilities for the proper administration of quarantine. Such a system as was inaugurated by the National Board of Health, and which is the only quarantine contemplated in these remarks, involves the removal of an infected or suspected vessel out of the track of commerce; the segregation of her sick from the well; the proper care and shelter of both these classes; the necessary disinfection of infected cargo, and the purification of the vessel; and the release of vessel, cargo and persons so soon as they have been rendered safe and free from the danger of communicating disease.

This is very different from a mere quarantine of detention. It is the American quarantine of sanitation, a common-sense quarantine, which aims to prevent the introduction and extension of contagion, not by merely arresting it at a given point and there leaving sick and well at its mercy until, the susceptible material having become exhausted, no more cases of the given disease occur; but by removing the susceptible at once from its influence, and then destroying it and the conditions necessary for its existence by scientific methods of disinfection and purification.

To do this, however, requires a quarantine plant and facilities far beyond the means of any but the largest ports, supported either by abundant quarantine fees or by adequate appropriations from the State or municipality. But cholera may obtain access at a small port as well as at a large one, and hence the necessity for the Refuge Stations above indicated.

Under the system here outlined the departure of a vessel from a cholera-infected port would be at once cabled to the national health officer; the authority at the port of destination would be duly notified; pilots for such port would be ordered to take the vessel to the nearest Refuge Station; and at such station, under the charge of a national officer, and at the expense of the national government, she would be so treated as to make it impossible that she could land cholera-contagion in our midst.

So much for the measures which should be adopted for the exclusion of the disease—measures which have already been practically tested sufficiently to demonstrate their feasibility and value. But before dismissing this branch of the subject it will be well to consider the possibility that it may be necessary to absolutely prohibit immigration, for a time at least, from infected countries. Every one of our cholera epidemics has been directly and unmistakably traceable to the arrival of immigrants infected in person or in baggage and household goods. It was the crowded troop-ship and transport which brought the contagion into France from China and Egypt. It is the crowded pilgrim-steamer and passenger vessel which carries it from Bombay and Calcutta into Europe and elsewhere, as already instanced. It is the steerage of the immigrant vessel, with its crowd-poison and other conditions favorable to the development of a specific contagion, which we have to fear. This contingency is one of the most important against which national legislation should be provided next winter.

I have said that I believe Asiatic cholera may be as successfully dealt with in this country as small-pox—notwithstanding that we have no such demonstrated prophylactic for the former, as vaccination is for the latter disease; that it may, probably, be more suc-

cessfully dealt with than yellow fever—notwithstanding that this is limited by climate and temperature, while cholera is independent of the one and only measurably affected by the other. I believe this to be the case as the result of my own official experience. In the last two epidemics of cholera, the disease was controlled wherever it appeared in the localities. under my supervision, by the adoption and enforcement of the simplest measures. Surface wells were fouled with carbolic acid, so that their use for drinking and culinary purposes was necessarily abandoned, and a pure water supply was provided instead. Every house where a case of cholera appeared was promptly taken charge of by the sanitary authorities; the patient was isolated; discharges were disinfected and buried; all other sources of infection were carefully looked after, and the premises, generally, were put in the best attainable sanitary condition; and with marked results upon the extension and progress of the disease. Every community, for itself, may readily provide a similar mode of dealing with a cholera outbreak, should the disease, unfortunately, be introduced.

But something more than this is needed in order to perfect the sanitary defense of the whole country. For this we must have coöperation and concert of action. We must devise a plan whereby the limited and individual powers of communities and States may supplement each other and act harmoniously and efficiently for the common welfare. In the exercise of its police powers—upon which all its sanitary laws and ordinances are founded—the municipality is confined within its own limits, or, for certain purposes, to a short distance beyond. The power of the State is in like manner limited by its own boundary lines.

In the absence of a national health organization, with power to act without reference to State lines and with resources to meet every emergency, the best we can now do is to form an organization of all those clothed with sanitary power and authority, both State and municipal:—an organization which shall give effect to the principle that, in sanitary matters, the interests of one are the interests of all; that we are each our brother's keeper in whatever pertains to the prevention of the introduction and spread of epidemic contagion. Such an organization as the Sanitary Council of the Mississippi Valley, supervising—and if need be maintaining—a system of sanitary surveillance similar to the River and Rail Inspection Service in the Valley, and the Immigration-Inspection Service of the recent small-pox epidemic, will be of great value in a two-fold manner.

It will enable State and municipal authorities to aid each other and to make their rules and regulations substantially uniform, and thereby to secure the cooperation and assistance of transportation companies and other commercial interests, whose business success depend so largely on freedom from unnecessary interruption or conflicting and changing restrictions. It will be of positive sanitary value in the moral pressure exerted on the individual agents of travel and traffic.

Here in the Valley, a great improvement in the sanitary conditions of steamboats, barges and river craft, and, to a minor degree, in the care of railway cars, depots and out-buildings, followed the knowledge that the detention for inspection depended upon the experience of the inspector with regard to the particular boat or line. In the same way the conditions of immigrant travel were sensibly improved by the Immigrant-Inspection service, not only on our railroads, but on the ocean steamers themselves. Its effects were also manifested in the administration of the seaboard quarantines, to which the Service was a direct help in securing a prompter and more general compliance with the quarantine requirements of the different ports.

This latter point is one of supreme importance to the interior. Illinois, for example, is as much interested in maritime quarantines as are communities bordering upon the Atlantic and the Gulf of Mexico. During my own official experience the State has repeatedly suffered from the laches and inefficiency of their administration. Her sanitary interests are protected or endangered through them along the whole line from the mouth of the St. Lawrence to the mouth of the Mississippi, and even to the Rio Grande. Means of communication and intercourse are now so multiplied that time and space—in respect to contagious diseases—are practically annihilated; and the methods which secured protection for the interior twenty years ago are, to a great extent, valueless today. In 1873, for example, there were outbreaks of epidemic cholera at Carthage, Ohio, Kandiyohi county, Minn., and Yankton, Dak., caused by cholera poison packed up in the household effects of emigrants in Holland, Sweden and Russia, respectively; these emigrants sailed from healthy ports, in healthy vessels, and were subjected to the usual sanitary requirements of the period. They passed through New York and all the intermediate territory without injury to the public health. But when their infected goods were unpacked in the interior of the continent they liberated the poison which gave rise to the local outbreaks.

Sooner or later the national government will be compelled not only to assume supervision of exterior quarantines, but to provide for a permanent system of coöperation with State and local governments in the administration of inter-State sanitation, in order, on the one hand, to prevent the introduction of exotic epidemic diseases, and, on the other, to prevent their spread from State to State along the great intra-national highways of travel and commerce. This is a national duty. It is one that the national government only can adequately discharge, and its expense is, equitably, one which should be defrayed from the national treasury.

Such an organization as I suggest will be one agency for securing the assumption of this duty by the general government; and the present emergency offers a favorable time for pressing its consideration. Heretofore, legislation in the interest of public health has been obtained, as a rule, at the tail-end of an epidemic. It has too often been in the nature of a locking of the stable-door after the horse was stolen.

Let us now see if we cannot reverse the process, and, while there is yet time, induce not only Congress, but States and municipalities to take the necessary action for securing a better protection of the public health.

Just now this means more than the good to be found in the saving of human life and in avoiding the suffering and misery, the ruined homes and desolated families which an epidemic always leaves in its track. It means the prevention of panic; it means the prevention of the interruption of trade and commerce; it means the prevention of the loss of millions of dollars, all of which would inevitably result from an epidemic of Asiatic cholera in this country. Already the disease has cost Southern Europe not less than a hundred million dollars—six million dollars up to October 1st in trying to prevent its spread in Italy alone, with a loss of four million dollars even in the month of August, before the disease had effected a serious foot-hold; and now it is announced that the decrease of the national revenues of France has been materially aggravated by the reduction of receipts from railways, caused by the cessation of travel consequent upon the prevalence of the cholera epidemic. And yet Europe is only upon the threshold of this epidemic, if we may judge from the past.

Shall we be warned in time, or shall we wait until the pestilence has landed and obtained a foothold? A single outbreak—possibly a single case—of Asiatic cholera in New York, or Chicago, or St. Louis or New Orleans, in our present condition, would cost the country millions of dollars, even though no epidemic spread should result.[1] With a perfectly feasible quarantine system, whose entire cost would not be a tithe of this sum, the chances of that single case may be made exceedingly remote. With an adequate sanitary organization—embracing within its scope the national authority, the State and the municipal, each in its respective sphere—not one case, nor one hundred could establish an epidemic.

Such an organization of the sanitary defenses would inspire public confidence and prevent panic in the face of real danger—and panic is one of the worst complications of a cholera epidemic, as fear is one of the most potent predisposing causes of the disease.

Our duty, our responsibility, and our opportunity, seem to me plain and obvious. So far as pushing general and local sanitation go, I believe we are doing fairly well; and to this extent we are reducing the chances of the spread of cholera, should it effect a landing through defective or wanting quarantine provisions. The next work that lies close to our hands is to inform the public as to the necessity of securing adequate legislation—national, State and municipal.

Congress must be urged to reorganize and rehabilitate the National Board of Health, or to provide an efficient substitute—one clothed with increased power and supplied with ample funds to maintain an effective system of modern sanitary quarantine for the exterior; to maintain an interior sanitary inspection service for the great highways of travel by land and water; and to give judicious coöperation and substantial assistance to States and municipalities in preventing the introduction of epidemic diseases into one State from another, and in preventing their spread within the States themselves.

Congress should give the President the power to issue a proclamation, upon the recommendation of the national health authority, forbidding immigration into the United States from infected districts of other countries, and it should provide some method of international sanitary coöperation between this country and the Dominion of Canada, whose interests are substantially the same as ours in these matters, and whose contiguity makes coöperation of vital importance.

In States which now have no boards of health, or whose boards are not vested with the necessary authority or provided with adequate resources, the people should be awakened to the necessities of the situtation. Legislators should be thoroughly informed as to the facts, and urged to provide suitable legislation.

Information on sanitary matters should be widely diffused to this end, and also to the end that, if an epidemic should come, we may not have to encounter the obstacles which ignorance is always ready to put in the way of what it does not understand. Happily, in this country we are not likely to meet with the treatment that the superstitious peasantry of France and Italy have accorded their physicians and health officers. But sanitary education and knowledge cannot be too widely spread.

These are matters which may profitably occupy much of our time and attention for the next two months; and I would suggest that when this meeting of the Conference adjourn it be to meet again in Washington early in December, for the purpose of conferring with the President, the proper Cabinet officers and the committees of the Senate and House as to the legislation which should be asked for at the next session of Congress. To this meeting I think not only should representatives of State Boards of Health be invited, but also all quarantine officers and the health authorities of the large cities, as well as those of the Dominion of Canada. I would also suggest that quarantine officers and those who are responsible for the local sanitation of towns, cities and States should be requested to come prepared to give all necessary information concerning the quarantine and sanitary affairs of their respective ports and localities.

[1] In 1879 the report of a single case of yellow fever in the South caused a shrinkage in the provision market, in Chicago alone, which amounted to a million of dollars within twenty-four hours.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, October 17, 1884.

Dr. Magnan, physician to the "Hospice Sainte Anne" (asylum for lunatics), lately delivered a very interesting clinical lecture on the various forms or

which he endeavored to show that anti-vivisectionists belonged to this interesting class of lunatics. He stated that the too ardent zeal displayed by anti-vivisectionists was a proof that their brains were weak and not properly balanced, that being of nervous temperaments, their conceptions, however just they may seem, are yet simply the precursory manifestations of incipient monomania. We have hitherto observed the insanity of financiers, speculators, and inventors, which consists of extravagant ideas of grandeur, of possessing large fortunes which did not in reality belong to them. In alcoholic subjects it is the delirium of persecution, whereas in anti-vivisectionists the monomania is quite of a different character, and may be considered a new type, as it is only within the last ten or fifteen years that it has been noticed, that is, since the question of vivisection was first agitated and protested against by would-be philanthropists. Dr. Magnan also brought the subject before the Biological Society of Paris, when he produced several examples of this new form of monomania, and among others he related the case of a lady of mature age whose solicitude for animals was such that whenever it rained she wept, because she was afraid of the animals out of doors getting wet. This morbid sensitiveness becomes exaggerated whenever she reads the reports of the anti-vivisectionists, when she gives herself up to the most delirious and eccentric acts. In the streets she is seen picking up pieces of broken glass lest they should hurt the horses' feet; she was also seen taking up her post at cab-stands with the view of preventing a horse that was feeding being disturbed. One morning, passing before a coal shop, this lady noticed that while the coal-man was harnessing his horse he illtreated the animal, and begged of the man to let her do it herself. She then embraced the horse, fastened it to the shafts of the cart and let the man start on his business with the injunction that the horse should be no more maltreated, enquiring at the same time at what hour the animal was in the habit of getting its food. The next day she was seen at the shop at the hour mentioned, and went to the place at the same time for several days after. She would take up the ugliest and dirtiest dogs that she would find in the streets and carry them to her house, which was a regular menagerie. Dr. Magnan related the case of another woman who was a vegetarian, and whose eccentricity consisted in living exclusively on vegetables because, she said, every one who ate meat was guilty of murder, and she would go to the slaughter-houses and remonstrate with the butchers on their cruelty. This woman's weakness also consisted in bringing together stray animals in the streets, such as dogs, cats, etc., and feeding them with bread from a basket she carried about for the purpose.

Sciatica is certainly one of the most intractable diseases a medical man has to deal with, and after having tried the usual remedies both general and local with unsatisfactory results, Dr. Debove, a hospital physician, adopted the local application of intense cold which he produced with methyl-chloride, and with manifestations of monomania, or what is more properly termed "affective or impulsive insanity," in which he obtained as low a temperature as 23° C., or 9.4° F. below freezing point. A spray of the fluid is directed to the whole of the painful region, and the skin becomes hard and pale. After a short time the tissues are allowed to thaw, and it is then often found that the pain has disappeared. Bullæ sometimes form on the skin as a consequence of the freezing, but they are of no importance, and the operation may be repeated if necessary. Dr. Debove states that he has had only a few relapses among the patients so treated.

The insolubility of the biniodide of mercury is well known, one litre of water dissolving only 4 centigrammes of the salt at the ordinary surrounding temperature, and at a slightly raised temperature it dissolves 5 centigrammes. M. Bourgoin has found that by adding alcohol to the water in the proportion of one-tenth it would dissolve 8 centigrammes of the biniodide salt. In pure alcohol, that is in rectified spirits, 2 grammes 90 centigrammes of the salt per litre can be dissolved. A litre of absolute alcohol would dissolve 11 grammes 86 centigrammes of the biniodide of mercury, which is of some advantage to know, as the salt is frequently not prescribed owing to its feeble solubility.

The winter session of the Paris School of Medicine will begin on the 3rd of November, and the following is a list of the professors who are to officiate during the session:

Prof. Gavarret, on Medical Physics.
Prof. Peter, on Medical Physiology.
Prof. Sappey, on Anatomy.
Prof. Gautier, on Medical Chemistry.
Prof. Lannelongue, on Surgical Pathology.
Prof. Robin, on Histology.
Prof. Cornil, on Morbid Anatomy.
Prof. Laboulbène, on History of Medicine and of Surgery.
Prof. Brouardel, on Medical Jurisprudence.

CLINIQUES.

Prof. Germain Sée, Clinical Medicine, at the Hotel-Dieu.
Prof. Hardy, Clinical Medicine at the Hopital de la Charité.
Prof. Potain, Clinical Medicine at the Hopital Necker.
Prof. Jaccoud, Clinical Medicine at La Pitié.
Prof. Ball, Mental Pathology at the Sainte-Anne Asylum.
Deputy-Prof. Joffroy, Diseases of Children.
Prof. Fournier, Syphilitic and Cutaneous Affections at the Hospital Saint-Louis.
Prof. Charcot, Diseases of the Nervous System at the Salpétriére Asylum.
Prof. Richet, Clinical Surgery at the Hotel-Dieu.
Prof. Verneuil, Clinical Surgery at La Pitié.
Prof. Trélat, Clinical Surgery at La Charité.
Prof. Le Fort, Clinical Surgery at the Hopital Necker.
Prof. Panas, Ophthalmology at the Hotel-Dieu.
Prof. Pajot, Clinical Obstetrics.

A. B.

MISCELLANEOUS.

SANITARY CONVENTION AT EAST SAGINAW, MICH.,

Under the Auspices of the State Board of Health, Arrangements having been made by a Local Committee of Citizens of East Saginaw, acting with a Committee of the State Board of Health.

TIME AND PLACE.—You are cordially invited to be present at the sessions of a Sanitary Convention which will be held in East Saginaw, Mich., on Tuesday and Wednesday, December 2 and 3, 1884.

SESSIONS.—There will be sessions the first day at 2 P. M. and 7:30 P. M.; on the second day at 9 A. M., 2 P. M., and 7:30 P. M., standard time.

At each session of the Convention there will be addresses or papers on subjects of general interest pertaining to public health, each paper to be followed by a discussion of the subject treated.

OFFICERS OF THE CONVENTION.—President, Hon. Wm. L. Webber; Vice-Presidents, Hon. David H. Jerome, Saginaw City; Rev. Rowland Connor, East Saginaw; Hon. Benton Hanchett, Saginaw City; Dr. H. C. Potter, East Saginaw; Hon. N. B. Bradley, Bay City; Hon. John S. Estabrook, East Saginaw; Hon. John Moore, Saginaw City; Hon. John B. Atwood, Flint; B. B. Ross, M.D., East Saginaw; Hon. J. J. Wheeler, East Saginaw; John Barter, Esq., East Saginaw. Secretary, Dr. H. V. Brooks; Assistant Secretary, ——— ———

ADMISSION.—The admission to all sessions of this Convention will be free, and the public are cordially invited. The invitation is especially extended to health officers to be present and take part in the discussions.

OBJECTS OF THE CONVENTION.—The objects of the Convention are the presentation of facts, the comparison of views, and the discussion of methods relating to the prevention of sickness and deaths, and the improvement of the conditions of living.

ADDRESSES AND SUBJECTS TO BE PRESENTED AND DISCUSSED.—Welcoming Address by Hon. John S. Estabrook, Mayor of East Saginaw; an address by the President of the Convention, Hon. William L. Webber.

Among the subjects which it is expected will be presented and discussed are the following:

1. The present and future water supply of East Saginaw.
2. Drainage and sewerage of East Saginaw.
3. The disposal of waste matter.
4. Coöperation of citizens in preventing the spread of diseases.
5. The sanitary condition and needs of school buildings and grounds.
6. The teaching of physiology and of the effects of alcohol, etc., in the public schools.
7. Ventilation
8. The preparation of food.
9. The adulteration of food.
10. Public health laws.

The papers are expected to be original contributions, which when read are to be considered the property of the Convention, and to be left with the Secretary. Programmes will be issued before the Convention.

It is expected that reduced fare on railroads may be obtained by applying to the Secretary of the Convention for certificates.

For further information address,

HARRIET V. BROOKS, M.D.,
Secretary.

934 Genesee Avenue, East Saginaw, Mich.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT UNITED STATES ARMY, FROM OCTOBER 25, 1884, TO OCTOBER 31, 1884.

Alden, Chas. H., Major and Surgeon, relieved from duty at Ft. Yates, D. T., and ordered for duty at Ft. Snelling, Minn. (S. O. 125, Dept. Dak., Oct. 20, 1884.)

Alden, C. H., Major and Surgeon, in addition to his duties at Ft Snelling, Minn., to perform the duty of attending surgeon at Dept. Headqr's. (S. O. 127, Hdqr's Dept. Dak., Oct. 23, 1884.)

Wilson, W. J., Captain and Assistant-Surgeon, assigned to temporary duty at Fort Trumbull, Conn. (S. O. 220, Dept. East, Oct. 27, 1884.)

Corbusier, W. H., Captain and Assistant-Surgeon, assigned to duty at Fort Bowie, A.T. (S. O. 99, Dept. Ariz., Oct. 22, 1884.)

La Garde, L. A., Captain and Assistant-Surgeon, assigned to duty at Fort Ellis, M. T., relieving First Lieutenant G. E. Bushnell, Assistant-Surgeon U.S.A., who upon being relieved, will report for duty at Ft. Snelling, Minn. (S. O. 126, Dept. Dak., Oct. 22, 1884).

Everts, Edward, First Lieutenant and Assistant-Surgeon, leave of absence extended one month. (S.O. 107, Hdqr's Div. Pacific, Oct. 21, 1884.)

McCaw, Walter D., First-Lieutenant and Assistant-Surgeon, ordered from Ft Craig, N M., to Ft. Wingate, N. M., for duty. (S. O. 92, Hdqr's Dist. of New Mexico, Oct. 21, 1884).

OFFICIAL LIST OF CHANGES IN MEDICAL CORPS OF THE NAVY DURING THE WEEK ENDING NOVEMBER 1, 1884.

Beardsley, Grove S., Surgeon, to Washington, D. C., for examination preliminary to promotion and as to qualifications for sea duty, Oct. 31, 1884.

Craig, Thomas C., Passed Assistant-Surgeon, to the "Alliance" for temporary duty, Oct. 31, 1884.

Gardner, James E., Passed Assistant-Surgeon, to the Naval Hospital, Norfolk, Va., Oct. 28, 1884.

Hall, John H., Passed Assistant-Surgeon, from the Naval Hospital, New York, to the Navy Yard, Mare Island, Cal., Oct. 29, 1884.

Hord, William T., Medical Director, to continue duty as member of the Retiring Board, until Jan. 1, 1884, Oct. 27, 1884.

Lovering, P. A., Passed Assistant-Surgeon, to the Naval Dispensary, Washington, D. C., for temporary duty, Oct. 27, 1884.

Turner, Thomas J., Medical Director, to continue duty as member of the Retiring Board until Jan. 1, 1884, Oct. 27, 1884.

Steele, John M., Passed Assistant-Surgeon, to the Naval Hospital, New York, Oct 29, 1884.

THE

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ORIGINAL ARTICLES.

ON THE ENTRANCE OF AIR INTO THE VEINS AS A CAUSE OF DEATH.

BY GEO. L. PORTER, M.D., BRIDGEPORT, CONN.

Read in the Section of Surgery and Anatomy of the American Medical Association, May, 1884.

While no welcome awaits the advent of a new danger in surgical practice, a cordial reception should be extended to the recognition of its existence.

Such knowledge is the beacon-light, which announces a threatening evil, and may prevent its occurrence. Forewarned is forearmed. The recognition, and not the danger, is new. Newton's discovery was only the new knowledge of a fact in the economy of nature as old as the universe. Dr. Bright, in 1827, published his recognition of diseased tissues, but albuminuria may have vexed the children of men since the flood. Many a victim, with a bronzed skin, and pearl-white sclerotic surrendered an enfeebled life, before the disease had received from Dr. Addison "a local habitation and a name." So who can tell how many deaths had followed the entrance of air into the veins, from the knife of the Druid priest, from "Rome's stout pilum in a stout Roman hand," from the spear of the Macedon, the Scythian arrow, and the scalpel of the surgeon, before Beauchesne in 1818—during that decade of discoveries, and classification of pathological conditions—while exsecting a tumor from the neck of a young man, ruptured the internal jugular vein, and witnessed the first death in surgical practice from the direct entrance of atmospheric air into the veins, which was prominently presented to the profession, and has ever since been a warning to surgeons while operating in the regions of the neck.

Once recognized, the reports of similar cases constantly accumulated, and before 1864 numbered sixty-seven (67).

This dreaded accident occurs without warning, announcing its own coming by the peculiar hissing sound at the opened vein, by the labored respiration, the expression of terror and suffering, the despairing cry, and by the consciousness of impending death. If the amount of air is considerable and suddenly introduced, life is immediately destroyed; if of small amount, and of gradual entrance, preventive means may close the vein, and remedial measures may combat the danger and save the patient.

A number of cases where the bubbling sound and peculiar prostration were symptomatic of the entrance of air, did not result fatally, although followed, in the case of Cooper, by a countenance deadly pale, pupils fixed and inobedient to light, fluttering pulse, irregular respiration, a continual whining cry, and a constant motion of alternate flexion and extension of the right leg, the left remaining quiescent; in the case of Mott, by difficult breathing, violent and irregular action of heart, distortion of face, convulsions of the whole body, and after the convulsions complete hemiplegia. These cases well illustrate the severe, but not fatal, types of this dangerous surgical complication.

The early writers and experimenters reached these conclusions:

I. That the symptoms were:

(a) a gurgling, hissing, bubbling sound in the wound, noticed, says Dr. Green, in forty-eight (48) instances, comprising nearly all of which we have any details;

(b) fatal collapse, or if life is prolonged,

(c) anxious countenance;

(d) labored respiration;

(e) lividity of lips;

(f) dilated pupils;

(g) pulse feeble, or violent and irregular;

(h) convulsions;

(i) paralysis. In twenty-five (25) cases there were symptoms of syncope; in six (6) convulsions without syncope; in seven (7) syncope followed by convulsions; tetanic spasm in the case of Mirault; opisthotonos in the case of Asmus; temporary hemiplegia in the case of Mott.

II. That there is no uniformity as to the time of death; of the fatal cases analyzed twenty-four (24) died immediately: Mirault's lived three hours; Clemot's several hours; Willis's seven (7) hours; Girbal's thirteen (13) and died with symptoms of asphyxia; Roux's seven (7) days, and one of Wattman's twenty-eight (28) days, finally dying of pneumonia: in Girbal's and Wattman's cases no autopsy was made.

III. That the danger-zone was limited originally to the region of the venous pulse, but this was afterwards extended to the uterine sinuses. Of the sixty-seven (67) cases cited by Green the seat of injury was in thirteen (13) the external jugular, in ten (10) the internal jugu-

Medico-Chirurgical Trans., vol. xxvii.
American Journal of the Med. Sciences.
American Journal of the Medical Sciences, No. xciii.

lar; in one (1) each the subclavian, axillary and facial, (11) eleven from uterine sinuses—and Dr. Lente adds seven (7) more—and in the others, with two doubtful cases, the vessels were not known.

IV. That post-mortem examinations revealed air in the circulatory system. Of the fatal cases eighteen were examined after death; in fifteen (15) air was found in the right cavities of the heart; in eight (8) air was found in the venous system; in six (6) in the arterial system; in the case of Dupuytren in the vessels of the brain; in Beauchesne's in all the vessels of the brain, in the inferior vena cava, iliac veins, aorta and crural arteries, (this examination was made eighteen (18) hours after death).

November 6, 1883, I made an official post-mortem examination in a case of suspected criminal abortion. The previous evening a spinster was alone in a room with a practitioner; within ten (10) minutes he came hurriedly out saying she had fainted. She never revived. The night temperature was 37° F.; examination made eighteen (18) hours after death.

No disease of vital organs.

No signs of decomposition.

Bloody stain on underclothes, but no blood in vagina.

In the uterus a five or six months' fœtus; cervix uteri an inch long; mucus plug of a faint pink tinge, shoved up; a small puncture extending through right posterior border of internal os, and emerging in uterus; the decidua vera separated for a space the size of one's palm, the uterine wall throughout its whole extent crepitant and filled with air; no spumous froth in inferior vena cava, or in heart; a sound was heard that might have been the escape of air, as the pulmonary artery was inadvertently cut.

This case is a counterpart of those reported by Dr. Swinburn (*American Medical Monthly*, June, 1860), and by Dr. Hitchcock (Transactions of the American Medical Association, volume xv, p. 83).

The cause of death was thought to be shock from the puncture and the forcible introduction of air into the uterine sinuses.

Allow me, for a few moments, to invite your attention to a case, whose post-mortem appearances were those of death from air in the veins, but during life its presence had not been suspected, as no noise had been heard at its entrance, as the wound was outside of the danger-zone, as the vein was of small size and remote from the heart, as the entrance of air was ten (10) days after the original injury, and as general convulsions—death occurring in the second attack—and difficult respiration were the only symptoms that might be called characteristic.

The entrance of air into the veins as a dangerous secondary complication of surgical operations, and of injuries, has not been hitherto classified. This case is the first, in which its medico-legal aspect was considered.

Upon October 11, 1883, I made an official examination, twenty-seven (27) hours after death of a woman, who had been struck eleven (11) days before with a chair, inflicting an almost incised wound, one and a half (1½) inches long, extending upwards and outwards, its inner angle one (1) inch from median line, and one (1) inch above right eyebrow, penetrating to and partially denuding the bone.

The temperature of the preceding night was 44° Fahrenheit. (Day, 10th, 43°; 67°).

Only slight discoloration around the cut; no union; pus had burrowed three-quarters (¾) of an inch below external angle. No other injury on surface of body.

Under scalp, ecchymosis at external angle of wound.

When sawing the skull, through an aperture near the left squamous suture there escaped bubbles of air mixed with blood; in the vessels of the brain a similar mass.

Abdominal organs healthy and normal.

Subinvolution of uterus—she had passed through a comfortable delivery two months before.

No appearance of decomposition.

Lungs, posteriorly congested—anteriorly normal.

Heart and pericardium carefully removed; walls relaxed; right auricle and ventricle filled with frothy blood; left ventricle contained semi-fluid blood unmixed with air.

In both superior and inferior vena cava was found the same spumous fluid—a frothy mixture of air and blood.

The presence of air in the venous circulation was given as the immediate cause of death.

During the examination I obtained the following clinical history: After the injury there was considerable hæmorrhage for two days, finally controlled by domestic applications. Upon the fifth day she was seen by Dr. Donaldson, and found in a squalid room, suffering from well-marked trismus equally severe on each side of the face; the wound was unhealthy, inflamed, and gaped to the extent of one-half (½) inch. It was thoroughly cleaned, the edges brought together with plaster and covered with absorbent cotton. The jaws were separated by a soft pine stick; chloral and bromide—laxative medicines—and proper food administered.

Next morning there was only a little pain; jaws could be opened half an inch, and wound looked better.

Upon the ninth (9th) day the severity of the trismic spasms returned; wound looked well, but there was no union; at 3 o'clock A. M. on the tenth (10th) day she had a convulsion and was found gasping for breath, and coughing up a thick, tenacious mucus. Nitrite of amyl gave speedy relief. With the convulsion there had been great increase of the trismus; at 6 A. M. she had another convulsion, and the doctor arrived only in time to see her expire.

From the history and post-mortem examination it seemed reasonable and just to conclude that death was caused by the air in veins and heart, entering through divided or injured branches of the temporal or frontal veins, which had been stretched and held open by the traction of the muscles during the tonic spasm of the trismus; that the first general clonic spasm of the convulsion occurred when the air—gradually entering through a small opening—had overburdened the heart and lungs; that the atmospheric air had formed with part of the blood the spumous

fluid, which had been churned back into the veins, and the rest of the blood remaining fluid had passed on into the general circulation and sustained life, until the air constantly increasing in amount had vitiated so much of the remaining blood as to cause the second convulsion and destroyed life.

To this theory there are these objections:

I. The distance from the danger-zone, or limit of the venous pulse. The venous pulse is the wave or current of blood, in the cavæ and jugulars, transmitted by the systole of the heart. If air can enter an open vein and thence pass into the circulation, the distance from the heart is immaterial. Prof. Gross says:[1] "Air thrown into the veins in remote parts of the body will destroy life as promptly and effectually as when it enters in the localities above referred to," *i. e.*, the neck. Dr. Browning, in his admirable monograph on "Veins of the Head,"[2] refers to a report in Volkmann's clinic in 1878, where in attempting to remove a cancer of the dura mater, the longitudinal sinus was opened, and so much air was aspirated as to prove rapidly fatal.

Dr. Warren, in removing a tumor from the thigh, cut the internal saphena and heard the sucking sound of the entering air. The vein was closed, and patient recovered.

II. The long time after original wound before the entrance of air. The subsidence of the inflammatory swelling, the breaking down of coagula, the stretching of a partially divided wall, or its ulceration, would open a previously closed vein.

Dr. S. W. Gross, in *American Journal of the Medical Sciences*, January and April, 1867, mentions an instance where air was heard to enter the external jugular vein, opened by ulceration.

III. The small size of the vein; the tolerance of so large an amount of air in the circulation, and its distribution so generally in the veins, prove its gradual entrance in small quantities. The trismic spasms may not only have opened, but also have canalised the vessel. Wattman (*American Journal of the Medical Sciences*, N. S., vol. ix, p. 171), writes: "By the lateral dragging of the venous coats, and the consequent enlargement of the calibre of the vessel, even small veins may be rendered, under particular pathological conditions, capable, when wounded, of admitting air."

IV. The absence of noise of entering air. That it was not heard may be due to the small aperture or the gradual entrance; to the confusion caused by the spasms of the trismus, or to the ignorance and inattention of her friends.

V. The questionable liability of the spontaneous generation of air in the circulation, claimed as a fact by some, especially the older writers; held by others to be "not proven." After death gases may be formed in the blood by decomposition, but would not be confined to the left side of the heart and immediate veins, and the tissues of the body would also exhibit putrefactive changes. To determine the frequency of air in the veins after death, Dr. Cless,[1] of Stuttgard, examined 1,200 bodies, in which death had resulted from various diseases, and found air in the veins in fourteen cases; in each of these the previous symptoms had led to the suspicion that air was present, as they were cases of blood-poisoning.

Jones and Sieveking (Morbid Anatomy, p. 412) think single bubbles have been heard to burst in the heart of a healthy person.

The most tangible cases are the six collected by Dr. May (Transactions London Pathological Society, vol. ix, p. 154–159), and I submit them to your judgment, respectfully claiming that some of them are not instances of spontaneous generation of air in the veins, but illustrations of the dangerous results following the introduction, into the venous system, of air, whether it be atmospheric, or intestinal, or gases evolved by degenerating tissues. In three there was a local lesion:

1st. Sudden death after opening the median vein, from which flowed immediately spumous fluid.

2nd. Ulceration of cœcum, air traced from ulcer to heart.

3rd. During a catamenial period; air traced from left lateral ligament to heart.

4th. Gangrene of great toe; air traced directly from it to the heart.

5th. Bronchitis; after two attacks of sudden cough, followed by insensibility, lividity, coldness of extremities, rapid pulse and respiration, ending with the expectoration of much frothy mucus tinged with blood, the patient died in the third attack. Frothy blood and air were found in the cavities and vessels of the heart.

6th. Case is inconclusive, as there were putrefactive changes in neck and upper portion of chest.

In the 5th and 6th cases there was also disease of the kidney.

As the final and VI. objection, that this case of secondary entrance of air as a surgical complication is without a recorded counterpart. In the Medical and Surgical History of the British Army in Turkey and the Crimea, vol. ii, p. 277, it is reported that a soldier died suddenly from entrance of air into the veins, three days and a half after amputation of the thigh. Twelve hours after death the right cavities of heart were filled with bright red froth, air mixed with blood, and the same fluid distended the ascending vena cava and two common iliac veins. The surfaces of the flaps were separated by gaseous products, and there had been no closure of the femoral vein, which lay quite open on the face of the stump.

A knowledge of this possible danger would prompt the surgeon to prevent its occurrence, and to carefully inspect open wounds when warned by the early recognition of the characteristic symptoms of the entrance of air.

[1] Gross's Surgery, vol. i, p. 781.

[2] Browning's Veins of the Head, page 70.

[1] Dr. Cless, Transactions Pathological Society London, vol. ix. p. 154.

ADDRESS ON ORAL AND DENTAL SURGERY.

BY TRUMAN W. BROPHY, M.D., CHICAGO.

Chairman of the Section on Oral and Dental Surgery of the American Medical Association, May, 1884.

MR. PRESIDENT AND GENTLEMEN:

A rule of this Association requires the chairman of each Section to prepare and read a paper in general session descriptive of what has been accomplished in his respective Section for its advancement during the past year. If I were to follow strictly the rule I should confine myself to a resumé of the *discoveries and advances made in oral and dental surgery during* the last twelve months. These have been sufficiently numerous and important to furnish material for a far more extended address than I contemplate, and the subjects are especially inviting; nevertheless, I shall venture, with your kind permission, upon rather a wide departure from established custom in this respect, and in place of these matters shall briefly recapitulate the struggles through which this department of medicine has passed since it assumed to antagonize pain and promote the health of man.

It is singular but true, that the healing art was not greatly honored for a long period after approximate civilization had in a measure dispelled the cloud of superstition which rested over the Middle Ages. The profession of arms was really the only one to which those who boasted of gentle blood could with propriety devote themselves, and the man whose occupation it was to make wounds had small respect for the one who in his rude way attempted to heal them. There was some reason for this sentiment. The disciples of Esculapius in those times were not models of learning, and for the most part were doubtless believers in the healing powers of magic rather than patient, thoughtful men, intelligently striving to find natural remedies for the various diseases that humanity is heir to, in the vegetable and mineral world.

But in those days superstition was not confined to the doctors, but it pervaded all ranks of society. The brightest intellects were employed in the laboratories of the alchemists, seeking for the philosopher's stone and the elixir of life. Divines believed in witchcraft as implicitly as in the decalogue ecclesiastics; performed or pretended to perform marvelous cures by the aid of locks of hair, finger-nails, relics of alleged departed saints, and the wisest took alarm or gained courage through spells and potents.

During all this benighted period the medical profession was never the avocation which a born gentleman could adopt without loss of caste, and it is only within the last century that practitioners of medicine as a class have attained real social position. Surgery as a distinctive art appears to have been hedged in by prejudice until a still later date, and its first devotees usually combined it with the calling of a barber. The dual avocation was announced to the world by the familiar striped pole which in these days denotes the apartments of a tonsorial artist, and was intended to represent the manner in which the injured limb should be bandaged. The tonsorial was probably then regarded as the more honorable of the two callings, and it was unquestionably the most remunerative, at all events, gentlemen who let blood, bound up wounds and shaved beards were known as barber surgeons.

The general medical practitioners and surgeons had secured social recognition, were highly respected for their attainments, and had even begun to play the autocrat at times when fortune had been especially kind in making them the favorites in fashionable neighborhoods, before the specialty of dental surgery was ever heard of.

The old-time doctor who went about the country in his gig with a pair of saddle bags between his feet containing those old standard remedies, salts, senna, calomel, and quinine, was always provided with a single instrument with which all teeth were treated, known as a turnkey.

It never appeared to have occurred to the practitioner of this period that there were many and grave diseases which had their direct origin in the masticating organs, or that it was worth while to study them in detail. If a patient was afflicted with odontalgia, the turnkeys were brought into requisition and as for treating diseases of the teeth and parts immediately associated with them on scientific principles, it was indeed unknown. It is scarcely more than fifty years since dental surgery began to be known as a distinct profession.

It was most unmistakably and emphatically a department and an important one of medical science, but it was years before the medical fraternity chose to afford it the slightest recognition. The professional dentist occupied a curious position; the physicians considered him rather in the light of a harmless quack who was endeavoring to perform a certain work which in part they had previously performed, but as it was very disagreeable work and not especially remunerative moreover, they were quite willing that the dentist should have it, and smiled complacently when he answered to the title of doctor. But the public very soon discovered that these dental surgeons were indispensable; that they were provided with instruments adapted to their avocation, that hopelessly diseased teeth were extracted with comparatively little difficulty, and that those which were partially decayed could be preserved by various processes. The large degree of public favor that dental surgeons, as well as others who devote themselves to the treatment of special organs, have secured, demonstrates the necessity of medical specialists. The field of medical science is indeed so broad that it cannot be thoroughly traversed by any one in a lifetime. The human mind can not embrace all the far-reaching ramifications of this profession, hence men have found it expedient to devote their attention to the study of special organs of the body and to acquiring such a minute knowledge of them as the general practitioner can scarcely hope to attain. Incontrovertible facts bear witness that the highest degree of success which has been secured in the treatment of special diseases has been the reward of individuals who made those

diseases the subject of patient, continuous and special investigation.

All this came to be generally understood and in a way acknowledged by the medical fraternity for years before any medical college was brought to consider dental surgery worthy of recognition in its curriculum, and the dental fraternity during this period had no training school of its own.

An earnest appeal was made to a medical college of Philadelphia at an early day by leading practitioners of dental surgery for an opportunity to secure for their students a complete medical education together with their special training, but the appeal was in vain, and in 1839 the dental surgeons, after untold discouragements, succeeded in establishing a college devoted to their interests. Since then others have sprung up here and there until at the present time eighteen colleges of this description exist in the United States. Of course there are defects in the present system of educating oral and dental surgeons which we recognize. Practitioners of our specialty have frequent occasion to deplore their lack of thorough knowledge of the principles of medicine and surgery, but the progressive ones avail themselves of the best advantages attainable when students, and hope that those who come after them may be more fortunate in securing the highest degree of instruction. But while it is all-important that the dental surgeon should be well versed in medical lore, should indeed be a fully educated medical man, it is also of vital consequence to the general practitioner to be accurately instructed in certain branches of our specialty. The lesions incident to the masticating organs are too numerous and in some instances so grave in their results that it is an error in judgment to any longer disregard them in our medical institutions of learning. Dental pathology and surgery should be taught in all our schools of medicine, and so long as these schools fail to recognize its importance and to establish dental professorships they will fail to graduate physicians who possess all the learning it is important for them to possess while prescribing for human ills.

Among the reasons why each medical college should have a professor on oral and dental subjects are the following: First. A thorough knowledge of the origin and development of the teeth should be acquired by every student. Second. He should also understand the time and mode of their eruption. Third. He should be able to distinguish between deciduous and permanent teeth. Fourth. Students of medicine as a rule are deficient in knowledge of the anatomy and physiology of the teeth. Fifth. He should understand the etiology of dental diseases and the hygienic measures requisite to abate or eradicate them. Sixth. Alveolar dental abscesses not infrequently simulate nasal catarrh as well as parotitis, and these abscesses discharge in some instances upon the face, beneath the chin or on the neck as low as the clavicle. Seventh. Neuralgias of the eye and ear in many cases have their unsuspected origin in the teeth. Eighth. Facial deformities are often due to irregularities of the permanent teeth, and these irregularities are due chiefly to neglect of the deciduous ones, or lack of proper advice pertaining to their care and treatment. These irregularities, indeed, not only cause the deformities mentioned but frequently the articulation is greatly impaired and the masticating organs are rendered almost useless. Ninth. Diseases of the maxillary sinus, caries and necrosis of the maxillary bones have their origin chiefly, also, from diseases of the teeth. Tenth. Pathological conditions of the teeth of children render perfect mastication impossible. "Without perfect mastication there can not be perfect digestion. Without perfect digestion there can not be perfect assimilation. Without perfect assimilation there can not be perfect nutrition. Without perfect nutrition there can not be health," and thus is it that injurious impressions are made upon the organism of a child which time can never efface.

These are grave facts and are worthy of the serious consideration of that great body to whom is entrusted the health and life of the community. The importance of this department of medical science you have frankly recognized in establishing the Section over which I have the honor to preside.

In the language of the great "Father of American Surgery," the illustrious member of our profession whose magnificent career has just terminated in death; the late Professor S. D. Gross, whose name we all love and venerate: "This is the most important of all the specialties of medicine; not because the diseases you treat are more important than others, but because of the enormous demand on the part of the community for skilled treatment in this department." But of this fact I doubt not you are already advised, and will agree with me that it cannot fail to contribute in the largest measure to the comfort of the laity and the relief of suffering humanity. I should not expect the medical student to familiarize himself with all the manipulations essential to dental art; but I do insist that our medical colleges should devote as much care to training in this department as is generally given to diseases of the skin, the eye and ear, etc., and that the general practitioner should be as capable of advising his patients in this department as in any other. Let the great tree of medical science foster and embrace every branch of the healing art. Let the student of medicine acquire a thorough knowledge of oral hygiene and dental pathology, and thus fortified, he can render a far better, because an infinitely more intelligent, service to his patients than he is now able to do.

To say what we have accomplished for the profession would consume too much time. In the treatment of compound fractures of the lower jaw marked improvements have been made of late in making and adjusting interdental splints.

If in our enthusiasm we eulogize the brilliant men who have adorned our ranks, we only echo the sentiments of each and every member of this distinguished body, as well as the entire educated world.

The greatest of all blessings, the anæsthetic agent, was presented to the world by a member of our specialty. And so long as humanity can remain unconscious in the swooning dream born of ether or chloroform while undergoing the most extensive surgical operations, the name of Horace Wells, the genius

who first dared to believe that all the sensibilities could be thus deadened, will be remembered and revered.

On examination of a report by the Illinois State Board of Health on Medical Education and the Regulation of the Practice of Medicine in the United States and Canada, I find the total number of medical colleges in these countries to be 135; in the United States 123, in Canada 12. And I am happy to state that in our own country there are now 20 medical colleges which sustain professorships of dental pathology and surgery. I hope the number may be greatly augmented during the next twelve months.

In conclusion, let me urge upon the directors of all schools of medical learning the importance of seeing that the curriculum embraces each and every specialty in which the student should be instructed before receiving a diploma authorizing him to deal with the health, not to say with the life, of those who entrust themselves to his professional care. It is a sacred trust the colleges confide to those whom they graduate as doctors of medicine. The great majority of gentlemen who receive this high honor are anxious to be deserving of it, and to be able in the future to give a good account of their stewardship. But with the best of intentions they will certainly fail, and perhaps ignobly, if their instruction is partial, not complete. Teach them all that can be taught; knowledge is like a good armor, and without it no professional man is prepared to enter the arena where his life contest is to be waged, and won or lost.

A CASE OF LIGATION OF THE VERTEBRAL ARTERY FOR AGGRAVATED EPILEPSY.

BY EDMUND ANDREWS, M.D., LL.D., CHICAGO,
PROF. OF CLINICAL SURGERY IN CHICAGO MEDICAL COLLEGE.

Read to Section of Surgery and Anatomy of the American Medical Association, May, 1884.

The proposition to ligate the vertebral artery for epilepsy has not met with great favor among surgeons, and the scanty literature upon the subject leaves its value a matter of uncertainty. I offer the following case, not as decisively proving the usefulness of the operation, but as a contribution toward the collection of facts necessary to the decision of the question. Mr. ——, at the age of 17 received a very severe and afflicting mental shock, which was followed by epilepsy. The paroxysms increased in frequency until his mental powers were wrecked. He was in a state of thorough insanity, and from that cause added to the great frequency of the fits, had to be cared for in a state of virtual confinement. Five years later, at the age of twenty-two, he was brought to me in the mental condition above described, and suffering from twelve to fifteen paroxysms every twenty-four hours.

Seeing that he had nothing to lose, I determined to try the operation. Ligation of the vertebral is easiest done in front before the artery enters the vertebral canal, and the high operation is condemned by some good authorities as too difficult, yet I have deemed it possible that the latter location, as being much nearer to the seat of disease, might have some advantages. Therefore I operated at the upper point, cutting down upon the vessel, and tying it between the right transverse processes of the atlas and the axis. The operation proved slow and difficult, notwithstanding previous practice upon the cadaver, but it was successfully accomplished. The paroxysms were not suddenly arrested, but they began at once to diminish in frequency and severity. At the end of three months he was having only about one in three weeks, and then only when provoked by mental excitement, or by indulgence in tobacco. At six and a half months the attacks had entirely ceased, and the mental powers were so much improved that the patient was comparatively sane and able to enjoy his liberty in walking about town. At this time I lost sight of the case and am unable to give any statement of the present condition.

No. 6 Sixteenth St., Chicago.

FRACTURE OF BASE OF SKULL WITH COMPLICATION OF VAGO-ACCESSORY NERVES.

BY JEFFERSON BETTMAN, M.D., CHICAGO.

(Read before the Chicago Society of Ophthalmology and Otology.)

Mr. C. W., grocer, aged 45, consulted me Oct. 1, 1883, for hoarseness and deafness. Three weeks prior he had fallen off a wagon and sustained severe injuries on the left side of head and face. The concussion almost deprived him of his senses; however remembers that persons hurried to his assistance and conveyed him home. Endeavors to communicate were futile, as his voice had sunken to a faint, hoarse whisper, rendering articulation inaudible. Simultaneously violent emesis set in and continued several hours, resisting all attempts to check it. Immediately upon the concussion he experienced a feeling expressed in his own vernacular "as if something had given way in his head," and he seemed to have lost all hearing power in his left ear. A sanguineous discharge, watery in consistency, set in from the same ear and continued oozing, drop by drop, for over two days. Vertigo was so intense that, although in a semi-conscious state, he lost all power of volition and could not exert the slightest control over muscular action. Attempts to swallow restoratives were useless, as he had lost all power of deglutition. Fluids were either rejected through the nostrils or passed into the larynx setting up violent spasm. High fever and a terrible headache, lancinating in character, set in and he lapsed into a stupor. A physician had in the meantime been called in and ordered ice applications to the head and neck. After five days the fever abated and he regained his consciousness. Vertigo was still so intense that he found it impossible to raise his head. The slightest movement of the lower jaw

called forth lancinating pains in the left ear, radiating over the entire left half of head and neck. The left side of neck and mastoid region were acutely sensitive to slightest pressure. All hæmorrhage had ceased, he was entirely deaf on the left ear, and a distressing tinnitus had in the mean time set in. His voice, which at first was gone, after a few days returned sufficiently to enable him to converse in a hoarse, monotone whisper. The power of deglutition was now restored to a limited extent and permitted him to be fed on thin soups and milk. The swallowing of these required visible efforts,and great care and deliberation had to be enforced to prevent suffocatory attacks. A fortnight after the injury he had recovered sufficiently to leave his bed. He experienced great difficulty in retaining his equilibrium and attempting locomotion. His gait was unsteady and staggering with a peculiar tendency to reel towards the left side. Vertigo was still intense, in brief, he experienced all the so-styled Menière symptoms. He also found difficulty in keeping his head erect and suffered from deep muscular pain over the back of his head and left side of his neck.

Status præsens. Mr. W. is robust in figure, well nourished in appearance,and on superficial survey presents but little trace of having undergone much physical suffering. The position of the head is peculiar, being bent to the right side and somewhat forward, the pose being similar to that in torticollis. Gait is unsteady with a perceptible reeling towards the left side. Voice is strikingly husky, weak, and is used with apparent exertion. Left side of head and neck somewhat discolored and bear faint traces of a contusion. Tissues over the left occiput, mastoid region and neck are somewhat tumefied and painful on deep pressure. He complains of a dull fixed pain, "muscular," as he himself states, radiating from the occipital protuberance over the left temporal-frontal region and affecting the muscles of the neck on the same side. The pains in the latter muscles are greatly aggravated by nodding motions of the head. Vertigo is still a prominent symptom, intensified by lowering the head or any sudden movement. Hearing power seems to be entirely obtunded on the left side. Tinnitus of a hissing, rushing nature, localized in the back of the head, is constant day and night, causing greatest discomfort. Disturbances of deglutition are still complained of, compelling him to restrict his diet to liquid food. The day previous on attempting to swallow some solid food, the bolus seemed to lodge in the upper part of the gullet, almost causing suffocation, ere it could be regurgitated.

Physical examination. Left auditory meatus filled with crusts and scales of dried blood, necessitating removal ere permitting detailed inspection of the parts. The upper and posterior walls of the osseous meatus are thickened, intensely congested, in places covered with adherent crusts of dried blood. These portions of canal are very sensitive to touch of the probe. Membrana tympani is lustreless, deeply injected, large interstitial clots of blood occupying the posterior and anterior inferior segments; manubrium mallei drawn inward and upward, posterior fold very prominent. Bone conduction is entirely suspended on left side, hearing power (ærial) tested with acumeter O_1 — Eustachian tube patent. Insufflation of middle ear produced no apparent change in hearing power or tinnitus. The membrane responds freely to suction of Siegel's otoscope, being in no part adherent. Right ear is comparatively unaffected, with normal range of audition.

The fauces, the left strikingly so, are darkly congested and extremely relaxed. In the acts of retching, induced by depressing the base of the tongue, the mucous membrane of the post. pharyngeal wall is forcibly drawn to the right side. The left palatine arch is flaccid and non-responsive to titullation with probe. The right faucium, on contrast, is hyperæsthetic, the mere touch of the probe calling forth immediate reflex action. The loss of sensation also involves the entire left half of posterior pharynx. Motions of the tongue unaffected; sense of taste in no way involved. Laryngoscopic examination reveals a state of complete paralysis of left vocal cord. The latter is curved, relaxed and immovably fixed in the cadaveric position. There is an associated paralysis of the left depressor epiglottidis. The left ventricular band is somewhat congested and tumefied, the larynx in other respects appearing normal. Tested with laryngeal probe, there is a marked anæsthesia of entire left larynx and epiglottis. Sensation to touch is so reduced, that a prolonged application of the probe is tolerated without inducing reflex spasm or cough. The right cord functionates normally, and sensibility of parts is intact. The intelligence of the patient was of such a grade as not to enable me to determine precisely the state of the crico-thyroid muscle. Pressure over the left thyroid cartilage is still very painful. Auscultation over the left lateral region of œsophagus, at a level with the cricoid cartilage, yields a noisy rumbling sound (*deglutitio sonora*) during an act of deglutition. Fluids are swallowed slowly and with apparent effort. My brother, Dr. Boerne Bettman, kindly made an ophthalmoscopic examination, and found distinct congestion of left retinal veins. Appetite is good; pulse 80, full and regular. Prescribed a solution of iodide of potash, an anodyne embrocation to back of head and neck, advised absolute rest, both mentally and physically, and requested him to return in a few days. In the meantime, contrary to my directions, he engaged in business, and suddenly left the city to transact some mercantile affairs. I heard nothing of him, till he again consulted me in June last, some nine months later. His physical appearance is, if anything, more robust and florid. Voice is still very husky, intonation undecided and faulty. Firmness in gait has not yet returned, and the patient at times still experiences a dizzy, reeling sensation. Vertigo, although much diminished, has not entirely left him. The left side of head and region of trapezius and sterno-cleido mastoid muscles still painful and somewhat sensitive to touch. The patient has never lost the sensation of a foreign body lodged in the throat. Deglutition has improved very much; but for fear of any mishap, he is compelled to swallow slowly and deliberately. Hearing has in no way improved, and it is the annoyance and discomfort of the persisting

tinnitus, that induced him to consult me again. The membrane is depressed with radiiform thickening of the membrana propria. A small scar, flaccid and reflecting the light, occupies the anterior inferior segment of the membrane. Insufflation produces no alteration in hearing. Sensibility of faucium is entirely restored, but motor action is still very sluggish. The left cord is still fixed in a cadaveric position. Reflex irritability is everywhere reëstablished, palpation evoking prompt reaction. Repeated applications of Faradeic and galvanic currents with administration of strychnia have as yet produced no perceptible improvement.

The total loss of hearing, the entire suspension of bone conduction on the same side, the long-continued oozing of blood, the various cerebral symptoms, all indicate a serious lesion of the internal ear. The concomitant laryngo-pharyngeal symptoms, both motor and sensory, necessarily include an involvement of the nerves supplying these functions. Bearing in mind the construction of the base of the skull, the relation of its component parts to each other and to the various nerve trunks passing through the foramena, it will not be difficult to trace and establish an intimate connection between the various complicated symptoms. A knowledge of the relations of these parts being requisite to associate the various pathological features in the case, it may not be superfluous to cursorily survey the leading anatomical landmarks of the region involved.

The jugular foramen (*foramen lacerum post.*), formed by the apposition of the jugular fossa of temporal bone (*pars petrosa*) with the articulating surface of the occipital bone, gives exit to the glosso-pharyngeal, vagus and spinal accessory nerves and internal jugular vein. In the passage through the foramen the vagus accompanies the spinal accessory, being contained in the same sheath of dura mater with it. The glosso-pharyngeal has its separate investment. The vagus at this point blending with fibres of spinal accessory, forms a well-marked ganglion, the jugular ganglion. Just inferior to its exit from the foramen, the fibres of the vagus blend with the accessory or inner ramus of the spinal accessory to form the plexus ganglioformis (*plexus nodosus*). It is this inner branch of the accessory that furnishes the motor filaments to the recurrent laryngeal, sup. laryngeal and pharyngeal nerves, offshoots of the vagus (Bischoff, Longet, Schech).[1] The spinal or outer ramus of the spinal accessory passes, in connection with the accessory branch, through the jugular foramen, and innervates the sterno-cleido mastoid and trapezius muscles. The superior laryngeal and pharyngeal nerves arise from the ganglioform plexus. The former is essentially a sensory nerve of vagus origin, the motor filament supplying the crico-thyroid muscle being, according to most physiologists, of accessory origin. The two pharyngeal branches, in conjunction with motor fibres of spinal accessory (Rüdinger, Luschka, Erb, Seeligmueller),[2] and possibly branches of the glosso-pharyngeal (Joh. Müller, Jolyet), inervate muscles of pharynx, soft palate and uvula. Pressure or any lesion of the gangliform plexus will call forth both sensory and motor disturbances in the larynx and pharynx. It is this part of the vagus nerve that Ziemssen[1] considers the first point exposed to injury outside of the cranial cavity. The complication of the muscles of the neck on left side, render it conclusive that the lesion in the case also involved the spinal or outer ramus of the spinal accessory nerve, locating the seat of injury above this point. Pressure on the vago-accessory in or at the jugular foramen will call forth a train of symptoms similar to those described in the clinical features of the case. The concurrence of aural and laryngo-pharyngeal symptoms render it extremely probable that the injury took place at this point. The direct concussion produced a fracture of the petrous portion of the temporal bone, the fissure extending through the entire bone to the border of the jugular foramen, involving the external osseous meatus, tegmen tympani and labyrinth. These immediately followed a disarticulation or displacement of the component bones at this part, with direct compression upon the structures passing through the foramen.

The absence of symptoms indicating an impaired function of the Glosso-pharyngeal nerve renders it probable that this nerve escaped injury. Although Joh. Müller[2] claims that the muscles of soft palate and uvula are in the main inervated by branches of the glosso-pharyngeal nerve, the more recent anatomical investigations of Burckhard[3] and Bendz,[4] confirmed by clinical observations of Erb[5] and others, trace the principal supply to the vago-accessory nerves. There was absolutely no impairment of sense of taste in the case, a fact elicited by personal investigation, and this in itself is sufficient to warrant an exclusion of the glosso-pharyngeal in the lesion. What function the glosso-pharyngeal exerts in the sensory inervation of the pharynx, is still *sub judice* (Foster)[6]. The anatomical circumstance that the vago-accessory nerves have one fibrous sheath in common, separate and distinct from that of the glosso-pharyngeal, may possibly to some extent account for the escape of the latter nerve. According to Mackenzie[7] "as the results of experiments of vivisection it would appear that when a pneumogastic nerve is injured, the opposite nerve, as a rule, suffices to discharge the more important functions previously supplied by both nerves. Hence, although in the first instance, the action of the heart and lungs is temporarily disturbed these organs generally soon recover, etc." The absence of cardiac disturbances so far as could be elicited at time of examination, render it presumable that, if any had taken place prior to this, they were merely transitory in nature. Cases of intracranial pressure or compression upon the nerves in their course through the jugular foramen are exceedingly rare. In the six instances recorded, all with but one exception were due to malignant tumors involving the base of the.

[1] Vide Schech, Zeitschrift für Biologie. Bd. ix.
[2] Vide Henle, Handbuch der Nervenlehre des Menschen, S. 435—1871

[1] Ziemssen, Handbuch der Spec. Pathologie. *IV.* Bd. I. S., 424—1879.
[2] Müller Archiv. 1837. S. 275.
[3] Burckhard, Heidenheins Studien des Physiol. Inst. zu Breslau, Heft. 4. S. 250.
[4] Bendz, vide Henle loc. cit. S. 436.
[5] Erb, Arch. für Klinishe Med. Bd. iv.
[6] Foster, Textbook of Physiology, New York. 1880. p. 295.
[7] Diseases of Throat and Nose. Vol. i, page 482. 1880.

skull. In a case recorded in a prelaryngoscopic period by Dufour[1], compression of spinal accessory nerve was induced by an intracranial echinococcus cyst. Chronologically allied to this, is an instance of pressure upon both spinal accessory nerves subsequent to cancerous infiltration of the bones of the basis cranii, observed by Türck[2]. More recent observations have been made by Gerhard[3], Fraenkel,[4] Schech[5], Mackenzie[6]. In all, as already mentioned, the compression was due to encroachment of malignant tumors. In Fraenkel's observation the vagus nerve was impinged upon at the left angle of the lower jaw by a lympho-sarcomatous growth. The publication of Schech, admirably thorough and exhaustive in its details, is highly valuable in assisting in the solution of many mooted points in the physiology of these nerves. Peripheric nerve lesions arising from pathological changes in the cerebral root centres, observed in tabes, bulbar paralysis, cerebro-spinal sclerosis, apoplexy and epilepsy, can not be included in the same category. Below the ganglioform plexus, the vagus, partly attributable to its more exposed position, has been injured in various ways.

From an otological standpoint, the fracture, excluding the nervous complication, offers but little of special interest. Judging from the clinical features alone, it is impossible to localize with any degree of certainty the exact extent of the fracture, and to detail the various parts of the structure involved. The acute localized tenderness of the superior posterior wall, the pains produced by movements of the lower maxilla, render it presumable that the fracture extended along the osseous meatus. The aural symptoms combined with the distinct cerebral disturbances, demonstrate beyond doubt an involvement of the labyrinth. According to Buck,[7] fractures occur most readily at the lines of union of the tympanic, petrous and squamous portions of the temporal bone. Hartmann[8] classifies these features into two divisions ; one, in which solution of continuity involves the lines of union alluded to above, and a second, in which the fissure extends transversely through the int. audit. meatus and vestibule of the labyrinth. In the preponderating number of cases, fractures of the basis cranii end fatally, cerebritis or meningitis developing. Where great drainage of ear has ensued, Hutchinson[9] states, that in fatal cases inflammation of subarachnoid spaces is more apt to occur. As exemplified by cases recorded by Eysell,[10] Trautmann[11] and others, cases of complete recovery, *quoad vitam*, even in most complicated cases, are by no means isolated. Meningeal troubles need not of necessity supervene, healing of the fracture taking place by fibrous union (Schwartze).[12] In the most favorable cases, hearing power is almost always irrevocably lost. In those exceptional instances, where a gradual restoration of hearing took place, (Schroter)[1] it is doubtful whether the structures of labyrinth were involved in the fracture. Tinnitus is an almost constant feature, and generally proves irremediable. The constant dull headache complained of and referred to the occipital region and nucha, render it probable that the structure at the base of the brain have not yet been fully restored to normal condition. The prognosis in such cases should be guarded, as instances have been recorded where patients, apparently recovered from the immediate effects of the injury, months later suddenly developed a fatal pachymeningitis.

Treatment can merely be of an expectant character in these cases. Strict precautions must be enforced to check or keep in obeyance any meningeal symptoms that may develop. Tissue changes take place in the nerve structures involved, and it accordingly remains to be doubted whether any remedial agent can restore their functions. Even in those possible cases where the cause of the compression is but temporary in character, such as a hæmorrhagic exudation, the natural tendency would be to gradual restoration independent of medicinal aid. Physiologically the case is interesting in confirming experiments by vivisection, that the vagus nerve of the opposite side gradually performs the more important functions previously discharged by both nerves. Why this restoration should merely be restricted to the afferent fibres, as already mentioned essentially of vagus origin, and not include the efferent fibres, demonstrated conclusively to be filaments of spinal accessory, remains an open question for physiologists to solve.

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[1] Dufour, Essai clinique sur les maladies de la voix, etc. Paris. 1857.
[2] Türck, Klinik der Kehlkoptkrankh. S. 437. Wien, 1866.
[3] Gerhard, Jenaische, Ztsch. f. Med. u. Naturwissensch. 1864.
[4] Fraenkel, Berl. klin. Wochenschrift. 1875, No. 3.
[5] Schech, Archiv für klin. Med. Bd. xxiii. S. 160. 1879.
[6] Mackenzie, loc. cit. Vol. i. p 431.
[7] Buck, *American Jour. of Otology*, vol. ii.
[8] Hartmann, Krankheit des Ohres, 1881, s. 190.
[9] Hutchinson, *Lancet*, 1875, vol. i.
[10] Eysell, Arch. für Ohrenhlk, s. 208, 1873.
[11] Trautmann, Ibid. Bd. xiv.
[12] Schwartze, Klebs. Handb. der Patholog. Anat. 6te L., S. 15, 1878.

HÆMORRHAGE OF THE VOCAL CORD.

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Hæmorrhage of the vocal cords is so rare that the following case will be of interest to many. The patient, H. B., æt. 45, merchant, came to me during the latter part of October complaining of hoarseness and discomfort in the larynx which had come on suddenly that morning.

On rising he had felt perfectly well, but while washing he was suddenly annoyed by a sensation as of some foreign body in the larynx that he described as a "lump in the throat" which troubled him particularly whenever he attempted to swallow.

Moderate hoarseness soon supervened.

When he called at my office about five hours afterward, the same sensations were still annoying him; he was quite hoarse and a small spot over the thyroid cartilage was tender to the touch. No constitutional symptoms were present.

I found the whole left vocal band of a brownish-red hue and thickened by sub-mucous infiltration of blood to about twice its normal size. Other portions of the larynx were normal.

I applied powdered iodoform to the larynx and di-

[1] Schroter, vide Urbantschitch; Lehrb. d. Ohrenhlk. Wien 1880, S. 293.

rected the patient to return to his home and apply cold compresses to the neck constantly for the next forty-eight hours. At the same time he was cautioned against the use of tobacco and directed to refrain from talking.

Two days later he returned to my office much improved. I found the vocal band much thinner than before, and its free edge lighter in color from partial absorption of the extravasated blood.

I applied a mild astringent spray to the larynx and as it was imperative for him to go about his business, I directed him to wear a silk handkerchief about the neck every day and apply a cold compress every night while soreness continued, or while the larynx should feel fatigued after talking. I also cautioned him not to smoke and not to use the voice when possible to avoid it.

No exciting cause for this extravasation could be detected, in which respect the case resembled a large percentage of the cases of hæmoptysis.

The patient first came under my care about two years ago, because of nasal polypi and anosmia. The polypi and all other causes of obstruction in the nares were completely removed, but the sense of smell was not restored; however, it would return temporarily at times, lasting for a few hours and then disappear without perceptible change in the physical condition of the nares.

This, together with a history of nervous prostration extending over two or three years before he first saw me, and not yet entirely recovered from, led me to attribute the hæmorrhage to disturbance of the vasomotor nerves.

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MEDICAL PROGRESS.

PHYSIOLOGY AND PATHOLOGY.

SOME RECENT OBSERVATIONS UPON THE SUPRA-RENAL CAPSULE.—The *Lancet* gives a brief of the experiments performed by M. Tizzoni during the past year upon the supra-renal body. In order to avoid unnecessary sacrifice of life, the author studied the best methods of removing the supra-renal capsules without damage to the surrounding structures and with the infliction of the least possible injury to the system at large. After having made a small incision in the lumbar region at the level of the adrenal body, the parenchyma of the capsule was lacerated, and its ablation practised, strict antiseptic precautions being observed. On the right side the neighboring vena cava inferior rendered the operation of extirpation difficult. For his experiments Tizzoni generally made use of rabbits weighing only about a kilogramme each, because in this circumstance the muscular mass of the lumbar region was but little developed, and so the operation was facilitated. When the animals succumbed as the result of the operative procedure, death was not due to the nervous accidents signalized by Brown-Sequard, but was caused by subcutaneous and intermuscular suppuration infiltrating the neighborhood of the wound. The majority of the animals which exhibited contracture of one or other of the front or hind limbs recovered, and it was only rarely that paralysis or death followed the appearance of the spastic contraction. The necropsy revealed in such cases the presence of an exudation about the meninges of the spinal cord and a softening of the spinal marrow without any demonstrable connection of the lesion of the supra-renal capsule with that of the nervous centres. Outside these complications—which may be regarded as quite exceptional—the operation was generally followed by no grave accidents; the animals, if the etherization were not too powerful, gave signs of pain only when the adrenal capsule was seized and lacerated. If this body, instead of being completely removed, were allowed to remain in the cavity of the abdomen (of course, after laceration of the capsule), the healing was much more rapidly effected; and if, some days later, the animal were killed, not a trace of the lacerated parenchyma of the supra-renal capsule could be detected; complete absorption of the essential elements appeared to have taken place. Thus, according to Tizzoni, the supra-renal body is absorbed without giving rise to any phenomena such as might be interpreted to be of the nature of blood-poisoning, so that the adrenal capsule contains no organic poison; and if by treating the organ with various chemical reagents a poison be obtained, one may affirm that it is not produced during life, and consequently the poison must be due to cadaveric decomposition. A certain time after the extirpation of the capsule there commences to appear a brownish discoloration of the nose, as if the animal had been plunged in charcoal powder after having drunk some liquid. Some small blackish linear markings also may be found scattered here and there over the mouth and nasal fossæ. The mucous membranes of these regions seem at first to be intact, but at the end of some days they become dotted with minute spots of the color of tobacco: the minute areas become circular as they enlarge, and by coalescence a bronzed surface of considerable extent and of a uniform tint is formed, and reaches its maximum intensity about the sixtieth day after the operation of removal or laceration of the supra-renal capsule.

A remarkable circumstance is mentioned by the Italian observer, which is to the effect that the destruction of one capsule only brings about unilateral pigmentation of that side of the body on which the operation was performed. If, however, the median line of the body were trespassed upon, the pigmentation extended to the whole of the surface of the body. [The text from which this report is taken leaves it doubtful by what the median line of the body was to be trespassed upon. We (the *Lancet*) take it that should the pigmentation proceed beyond the mesial line, then the discoloration would be universal.] White rabbits did not present any of the pigmentary phenomena.

From a histological point of view the following observations were made: When the coagulum of blood and the parenchyma of the lacerated organ had been resorbed, the fibrous envelope of the capsule

was found to be filled with a connective tissue of new formation, together with large granular cells like those which are found in white softening of the brain; giant-cells which had undergone caseous degeneration were also to be seen. The last fact would seem to negative Nothnagel's opinion that chronic caseous inflammation of the adrenal body was always of a tuberculous nature. These giant-cells were produced in the same way as those which develop as the result of irritation of serous membranes by a foreign body. Another observation was made by Tizzoni which appears to be extraordinary, to say the least of it. The various elements of the supra-renal capsule in the rabbit may be "reconstructed." This fact is alleged to have been observed 144 days after the almost total destruction of the supra-renal body in a rabbit. The size, color and structure of the organ were normal in another rabbit 26 days after the operation, presumably, of free laceration. At the autopsy a small nodule exhibiting active new formation of supra-renal parenchyma was also discovered. A fine interlacement of filaments of the great sympathetic cord with numerous ganglion cells and gangliform swellings had developed and covered the cortical substance of the adrenal gland of the animal last referred to. The Italian pathologist does not speculate on the mode of production of the bronzing which he observed. Many of the statements made by him require careful consideration at the hands of other experimental pathologists, but as opening up afresh the relations of the adrenal body to the system at large, the results of Tizzoni's experiments must be admitted to be of decided value.

MEDICINE.

Periodical Change of Color of Hair.—The *Lancet* describes the case of a young girl aged thirteen, of an idiotic type, who was admitted into the asylum at Hamburg on April 1, 1880, and died there in 1882. At the age of three years she began to be affected with spontaneous movements like those of St. Vitus's dance, which were chiefly confined to the head and upper limbs. Between her fifth and sixth years she had become the subject of well-marked epilepsy. She was able when four years old to run round a table, but her powers of progression steadily diminished, and the lower limbs passed into a condition of chronic stiffness. When in the asylum of Dalldorf (Hamburg), she had epileptic fits about every eight or fourteen days; besides, it was observed that she experienced alternations of agitation and calmness, each of about a week's duration.

In the period of agitation the turgescence and redness of the face were most pronounced, the pulse was full, the skin warm, and actively transpiring, at the same time that the mental condition was one of extreme obstinacy. Further, it was often remarked that the color of the hair underwent decided changes; sometimes it was blonde and at others red, whilst the depth of these colors also varied. The alterations in color occurred in the brief space of two or three days; the first appearance of change was observed at the free ends of the hairs; the same tint of hair persisted for seven or eight days. Each of these periods of changes of color of hair coincided with a phase of agitation or sedateness. During the state of excitement the hair always had a red color, whilst pending the phases of stupidity the blonde tint prevailed. The case appeared to be one of genuine pathological change. The paler hairs differed from the darker ones only in the presence of more numerous air spaces. The structure of the brain and spinal cord was much altered.

Willing and Thought-Reading.—The *British Medical Journal* has an article under this heading which shows that the mental exertion employed in such amusements is not without its perils and mischiefs, of which two cases, reported at the last meeting of the Cambridge Medical Society, afford characteristic examples. The one case was related by Mr. Deighton. In November, 1883, he was summoned in urgent haste to see an undergraduate. He found him surrounded by his friends, who said they had been playing the willing game, and that he had been blindfolded and willed; soon afterwards he became tottery on his legs, and went off into a state of convulsions. When seen, he was tossing about on a sofa, with face slightly flushed, the movements of the arms and legs being most irregular, almost equally exaggerated on both sides. The muscles of the face and neck were least affected, but he spoke in a jerky way, and, on putting out his tongue, it was protruded and withdrawn suddenly. He was quite conscious, clear and collected, and said that he tried to prevent himself from tossing about, but could not help it. The pupils acted to light, and were natural in size. He recovered after calming treatment and rest. It was an attack of induced chorea or hysteria brought on by mental strain.

Mr. Wherry also reported a case. He was sent for one evening to see an undergraduate who had become suddenly ill during the willing game. It appeared that his friends had blindfolded him in the same manner, and were willing him to do some simple action, when all of a sudden he became weak in the knees, and had to be helped to a seat. The handkerchief was removed at once, but the patient did not seem at all himself. Mr. Wherry found him leaning against the mantel-shelf, looking fixedly downwards in a dogged and morose attitude. He answered questions in monosyllables in a hesitating way, not stammering, but with a jerk and without expression. Usually, his friends said, his manners were natural and polite. The pupils were dilated, with no action to light, and his memory was a blank as to the details of the game. He was sent to bed, and when seen the next morning he was better; his pupils were normal and active to light, but his manner was still odd, and his speech was remarkable. When advised to leave Cambridge for a few days' change, he refused rudely, but was afterwards persuaded by his friends, and returned quite well. Mr. Wherry remarked upon the strange state induced by this willing game; the dogged and morose manner, slow replies, no action of the pupils to light, rapid recovery, and no recollection of the period during which he was being willed—altogether

a condition which, he was informed, corresponded with the hypnotic or mesmeric state, and one in which medical men were interested.

WINTER HÆMOGLOBINURIA.—Professor Nothnagel, of Vienna, has given a very interesting clinical lecture on this subject which is reported in the *Medical Times*. His patient complained of certain peculiar sensations, as the result of chilling the feet in the winter, a shivering throughout the whole of the body, afterwards feeling hot and perspiring profusely. He suffered from various acute infectious diseases during childhood and at the age of 18 contracted syphilis. Three years ago he had the first attack as following exposure to cold, and during the past winter the attacks have occurred so frequently that the patient is almost afraid of going out when it is cold. He further states that during the attack he suffers from great thirst as long as the shivering lasts. We cannot conclude that the main affection is of a malarious nature, for its occurrence is irregular and dependent upon the influence of cold. Moreover, he states that he has no attacks during the summer, but only in winter. The urine passed immediately after an attack is black, subsequently it is clear. A specimen of the black urine boiled with caustic potash, causes a precipitate of the phosphates of a brownish red color, no red corpuscles under the microscope. Albumen on boiling giving a flaky sediment. This sediment on boiling with alcohol which has been rendered acid with dilute sulphuric acid, gives up its blood-pigment to the alcohol. The blood-pigment therefore exists free in the liquid and not in combination with red blood-corpuscles. In hæmaturia we find red blood-corpuscles. Here we find blood-pigment which with the spectroscope gives the characteristic absorption lines of hæmoglobin, but not a sign of a red corpuscle, hence this is called hæmoglobinuria.

The conditions under which this disease occurs have been very much studied in the last fifteen years. First it has been observed in cases of poisoning, such as carbolic acid, sulphuric and phosphoric acids, and in cases of poisoning by arseniuretted hydrogen: secondly, in burns of the skin; thirdly, in certain acute infectious diseases, as for instance, scarlet fever and typhoid. In all these conditions the affection is *rare*. A large number of cases were observed about ten years ago, when the treatment of consumption and carcinoma by the transfusion of lamb's blood was in vogue. It was shown that when the blood of an animal of one species is transfused into the system of one of another species, it is injurious to the latter. If one transfuses blood from a lamb into a dog, it may prove fatal to the latter, just as it might to a man treated in a similar way. The serious symptoms observed in such a case are to be considered as a direct consequence of the transfusion, the blood corpuscles of one species having a pernicious effect on those of another. Landois has shown that marked hæmoglobinuria occurs in such cases, which he attributes to the fact that the red blood-corpuscles are dissolved; it is therefore an artificial hæmoglobinuria.

This special affection of paroxysmal or winter hæmoglobinuria is a disease seldom met with. The majority of such cases have been recorded in English, American and German literature; very few have been recorded in French literature, and still fewer in Russian. The disease presents the following symptoms: "The patient is seized with it in paroxysms, hence the name paroxysmal. In the intervals he is perfectly well, though exhausted and weak owing to the loss of the blood-corpuscles which have been destroyed, but besides this general weakness he does not complain of anything. It is the effect of cold on hands and feet which especially produces the fafection. Sometimes one is able to bring on an attack artificially. Rosenbach gave one of his patients a cold bath in summer, and an attack resulted. The sensations of the patient during the attack are very unpleasant; he yawns constantly; he is then seized with shivering through the whole of the body which is followed by heat and perspiration (a temperature of 104° F. has been observed). The patient then passes urine which is of the color of blood; the same color may be noticed two or three times in the subsequent 24 hours and then it disappears. Sometimes casts are to be found in the urine, but this is an exception; there may, indeed, be blood casts, for the hæmoglobin may coagulate while still in the urinary passages. Sometimes hyaline casts are also to be found.

How does hæmoglobinuria arise? Probably by the influence of cold. If we make the blood freeze, the blood-corpuscles are destroyed, and we then have blood with a color like lac dye. During the attack there circulates in the vessels ruby-colored blood; that is to say, there is free hæmoglobin—this has been proved by the abstraction of blood by means of a cupping-glass during an attack; the hæmoglobin is said to have an influence on the vaso-motor centre, hence the shivering, followed by heat and perspiration. As to the prognosis, the disease lasts in some cases several years and then disappears suddenly. In some patients we obtain good results from anti-syphilitic treatment, even when the disease has not a syphilitic origin. Besides this the patient must have good nourishment; he must live on meat, milk, eggs and wine, and iron must be given to him. If we do not succeed in curing the patient in this way, we must order him to a milder climate during the winter.

SURGERY.

ON PREPUCE GRAFTING.—Under this heading R. Clement Lucas, B.S., advocates in the *Lancet*, the use of the prepuce, as removed from children in the operation of circumcision, for obtaining cuticle to apply to extensive burns, etc. There is seldom any danger of communicating disease in this way, as when balanitis is associated with phimosis it can, and should, always be cured before operating. The surplus skin of this part, from its suppleness, thinness and vascularity, appears to be peculiarly adapted for transplantation, so that Mr. Lucas has found grafts from this source adhere when those from other parts have

failed. These grafts may be readily obtained from childrens' hospitals where the number of children that are generally brought for the treatment of phimosis is so great that many days will never elapse without the surgeon being called upon to perform circumcision. The time which may be allowed to lapse between the removal of the skin and its application in the form of small grafts to a wound may probably be extended until signs of putrefaction begin to appear. Mr. Lucas has allowed from a half-hour to an hour sometimes to pass before the skin has been thus made use of. In no case has he placed them in hot water or made any provision for maintaining them at the temperature of the body. If the recipient of the grafts lived at a distance from the person yielding the skin, he believes the skin might be conveyed in a small glass bottle or wrapped in gutta-percha, without loss of vitality, for some hours.

It is possible that some surgeons may take a sentimental objection to this method of healing large granulating sores; but any such feeling should yield to the excellent practical results which may be obtained by it. The only reasonable argument against it is that disease might by careless grafting be introduced into the system of a healthy child; but this is so remote that with ordinary caution it would be impossible. On the other hand he believes the prepuce of a child possesses a germinal vitality which renders it peculiarly serviceable for grafting.

Successful Nephrectomy for Calculous Pyelitis.—*La Gazzetta degli Ospitali* (*Lancet*) contains a report by Dr. A. Salomoni of a case in which Professor E. Bottini successfully removed the kidney. The operation was performed at Milan, on the 8th of June last. The patient, Annibale M., aged 27, had had two calculi removed by lateral lithotomy fifteen years previously. Three years after that operation an abscess formed in the right iliac fossa. It opened spontaneously, and after a few months reappeared in the lumbar region, when it was opened with caustic potash. A permanent fistula resulted, and proved intractable to all local and constitutional treatment. The patient lying on the left side, under chloroform, Professor Bottini, under strict antiseptic precautions, made a vertical incision through the whole ileo-costal space, three inches outside the quadratus lumborum. The kidney having been isolated, the renal artery was secured in one ligature, the vein and ureter in another. The space having been well cleared and all bleeding stopped, a drainage tube about one-third of an inch in diameter was introduced. The walls of the fistula were excised, and the wound united by one deep metallic suture and eight superficial silk ones. The operation lasted a little over an hour. The antiseptic dressing was renewed daily, the metallic suture was removed on the third, and the silk ones on the fourth day, when the drainage-tube was shortened. It was withdrawn on the eighteenth day. Progress was uninterrupted. The highest temperature, 100° F., was reached the second day; urine in normal quantity, and without deposit, was passed without pain or trouble. The patient left his bed on the sixth, and went home on the eighteenth day, when only a slight sinus remained, about an inch deep. The extirpated kidney weighed 48 grammes, and measured vertically 6 centimetres—4 across and 2 antero-posteriorly. Its consistence was greater than normal; color grayish. On section, the upper three-fourths consisted of fibro-cellular tissue; the lower fourth of renal parenchyma, altered, with the pyramids in process of disappearance. The fistula led into the pelvis of the kidney, which was dilated, with thickened and suppurating walls, and contained, besides some uric acid sand, two small calculi about the size and shape of grains of barley.

On Inflammation of the Eye and its Annexes as Caused by Astigmatism.—Dr. Georges-Martin (*Jour. de Med. de Paris*) considers that we do not appreciate sufficiently the serious conditions which may follow directly as caused by astigmatism. For a long time we have looked upon the astigmatic eye as a badly constructed optical instrument, producing only deformed images upon the retina; this idea does not conform to the other view that astigmatics are capable of excellent vision. A knowledge of the partial contractions of the ciliary muscle explains why the images are *not* deformed, and why vision is *not* defective. The optic defect of the astigmatic eye finds an intelligent corrective in these partial contractions. But the activity of this corrective cannot be indulged in without disturbing the perfect harmony of the nutrition of the eye and its surrounding tissues. Dr. Martin sees in these contractions the cause of certain inflammatory affections, such as blepharitis, conjunctivitis, phlyctenular keratites, scrofulous keratites, and hordeoli; and other ocular or peri-ocular affections, such as temporal neuralgias, blepharospasms, palpebral cysts, and muscæ volitantes. The relation of cause to effect as established between astigmatism and these affections is: (*a*) By the especial frequency of these affections in astigmatics; (*b*) by the fact, frequently established, of one or several of these affections being reproduced in successive attacks or relapses in the same cases, and always in the same eye—the one affected with astigmatism; (*c*) by the remarkable therapeutic effects produced by drugs which paralyze the ciliary muscle; (*d*) by the protective influence exerted by cylindrical glasses which are perfectly corrected; (*e*) by the fact that corneal astigmatism is replaced (when at fault) by the spasmodic astigmatism, *i. e.*, partial idiopathic ciliary contraction.

In the etiology of these affections astigmatism does not take the place of the general condition. Both exert their influences. The general condition, varying according to individuality, explains partly why the ciliary effect is revealed by these diverse morbid phenomena.

Operation upon a Cyst of the Pancreas.—Gussenbauer (*Archiv für Klin. Chir.*) gives a case of a man 40 years of age who suffered for three months from an affection of the stomach, characterized by

pain, vomiting, and emaciation. On his entrance into the hospital, there was found a tumor in the epigastric region extending to the umbilicus, clearly defined, and diminishing in size transversely from the left costal border to the right lumbar region. The median horizontal diameter reached 18½ centimetres, and the oblique diameter in its greatest length, 22 centimetres. On distending the stomach artificially, the greater curvature and the transverse colon were seen to cover the tumor transversely; these two organs, when the abdominal walls were relaxed, could be displaced from the tumor which followed the movements of respiration. The skin was of a greyish brown. Percussion was dull. Diagnosis: Cyst of the pancreas or left supra-renal capsule.

The operation consisted in fixing the cystic wall to the incised abdominal wall, after separating the colon and greater curvature of the stomach. Then the cyst, held firmly, was partly emptied by the trocar, and afterwards incised. The finger, when introduced into the resulting cavity, removed from the walls of the cyst adherent portions of a blackish-brown mass. In other respects, the walls were smooth; admitting of a penetration into the tissue of the pancreas and a pressing of the posterior cystic wall just over the aorta. The fluid discharged, about 1,900 grammes, contained altered blood, none of the biliary coloring matters, no metalbum, peptone or sugar, but simply ordinary albumen with a body analogous to mucine.

In the course of the second week, masses of a blackish substance, like that removed at the time of the operation, were spontaneously eliminated through the wound. Later the cavity contracted considerably, only secreting a colorless liquid. This liquid gave an alkaline reaction, digested albumen, formed leucine and tyrosine, transformed starch into sugar, and was no other than the pancreatic secretion. The cyst was a true hæmatoma of the pancreas. Twenty-eight days after the operation, the patient left the hospital; a small fistula led into the cavity 3 centimetres in depth; with but a slight secretion.

CONSIDERATIONS ON THE ABLATION OF THE ASTRAGALUS IN THE TREATMENT OF FUNGOUS OSTEO-ARTHRITIS OF THE INSTEP.—Dr. Robert (*Archives gén de Méd.*) in his article on this subject arrives at the following conclusions:

1. A sprain of the foot is frequently followed by chronic osseous lesions, having a great tendency to localize themselves in the astragalus or in the articular surface of the astragalus or calcaneum.

2. These lesions may remain for a long time limited to this region of the tarsus, nevertheless the simple means directed against this osteo-arthritis are often powerless, modifying injections and ignipuncture are equally inefficacious. Gouging, scraping and deep cauterization do not surely reach the full extent of the disease, and sometimes provoke an aggravation which makes amputation necessary.

3. The extraction of the astragalus is an operation which facilitates the exploration of the articular surfaces affected by caries, and permits of a sure removal of the diseased parts. Practiced according to Vogt's method, it is easy of execution, does not produce any serious results, the mortality being slight, gives permanent relief and functional results that are very good.

4. Like all other resections, the ablation of the astragalus should not be attempted in cases of pulmonary consumption, in aged persons, or when the lesions are too extensive.

VOGT'S METHOD OF RESECTION OF THE ASTRAGALUS.—An anterior cutaneous incision is made from the tibio-tarsal articular line on the external border of the extensor communis, and directed longitudinally on the tibio-tarsal articulation and dorsum of the foot to Chopart's articulation. The subcutaneous cellular tissue, aponeurosis, and annular ligament are divided, the tendons of the extensor longus digitorum are separated carefully from the subjacent tissues and held firmly to one side, the extensor brevis d. is incised and drawn to one side upon the external lip of the wound, the external malleolar artery as well as the accompanying veins are divided between two ligatures.

The articular capsule being incised longitudinally as far as possible, the insertions of the capsule and its ligaments are detached on each side by the raspatorium, the head and neck of the astragalus are denuded, the astragalo-scaphoidean ligaments are divided transversely, so as to disengage the anterior part of the astragalus. Now an incision is made from the middle of the anterior longitudinal incision, which is laterally transverse, and in the adult about 10 centimetres long, terminating under the point of the external malleolus, and the soft parts are gradually divided down to the astragalus without interfering with the peroneal tendons.

The foot being forcibly supinated, the peroneo-calcanean ligaments are divided close to the malleolus, and a short-pointed bistoury cuts the ligamentous attachment of the sinus of the tarsus, using also if necessary a delicate pair of scissors.

The astragalus is brought forward in rotating outwards the supinated foot, by seizing the neck of the astragalus with a davier, or by the aid of an elevator placed beneath the bone. A fine pair of scissors introduced between the internal malleolus and the astragalus, cuts the large insertion of the internal lateral ligament to the astragalus; a new traction, effected by pressure, carries the astragalus so forcibly outward that its last attachments to the calcaneum at the posterior astragalo-calcanean articulation can be easily divided.

After the ablation of the astragalus, the whole of the articular cavity is exposed, the synovial membranes can be extirpated, and it is easy to remove all parts of the tibia and calcaneum that may be suspicious. After drainage and suture, the superior surface of the calcaneum adapts itself so exactly to the malleolar surfaces as to leave no cavity.

THE

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, NOVEMBER 15, 1884.

CHOLERA, ITS INCREASE IN PARIS.—We have endeavored to keep the readers of the JOURNAL reasonably well advised concerning the progress of epidemic cholera in Europe, from the time of its outbreak in Toulon to the present time. For a few weeks past the prevalence of the scourge had been diminishing so rapidly, that it was hoped it would not reach the north of France or the more northern countries of Europe, at least, until another summer. But during the last few days it has developed a decided increase in Paris. We say increase because it has been known that some cases have been occurring from time to time in that city since June 20. True, they were called sporadic. But the early and more scattering cases that usher in all epidemics are called sporadic until the later stages of the progress of the disease. According to a Paris telegram of November 8, there had been 160 cases of cholera in that city since June 20, of which 60 had proved fatal. And during the twenty-four hours preceding midnight of the 7th inst. there had occurred 70 new cases and 8 deaths. This official acknowledgment of the existence of the disease and its rapid increase, has checked commerce and travel, and caused much alarm. It is still thought by many that the disease will develop only moderately during the winter, but will become sufficiently planted to cause a full epidemic at the commencement of another summer. This view also gives additional force to the probabilities of its development on this side of the Atlantic at the same time; and should prevent any relaxation of the efforts on the part of municipal authorities, Boards of Health, and citizens, to place every part of our country in the best sanitary condition possible, and to continue it thus throughout the coming year. For the purpose of keeping the profession generally well informed in regard to the prevailing views of the leading sanitarians engaged in active sanitary work in this country, we published in full last week the report of Dr. John H. Rauch to the Conference of the State Boards of Health in St. Louis, and this week we give the recommendations of that Conference, which were also sanctioned by the American Public Health Association, in session at the same time. While we do not regard the "three essential factors" set forth by the Conference as the basis of their recommendations, so fully established as to justify their assertion in a manner so positive and unqualified, yet we think the recommendations are, for the most part, judicious and important. To do our utmost to prevent the importation of infectious diseases of all kinds; to secure pure air, pure water, wholesome food, and universal cleanliness; and to promptly disinfect or destroy the dejecta of cholera patients, whether they contain an infectious microbe or not, is not only calculated to protect the people against epidemics, but also to greatly lessen all the more common endemic and sporadic diseases to which they are ordinarily liable. Hence all the money and zeal expended, in an enlightened effort to accomplish these objects, are well spent; and will directly promote the health, happiness and wealth of the people.

AN IMPORTANT DEMONSTRATION IN MICROBIOLOGY.—Whilst a good number of the profession require no word of caution in reference to the too hasty adoption of theories relative to bacteria as a causative element in the development of disease, yet from the recklessness with which the terms "septic" and "antiseptic," "germs" and "germicides" are used by some writers, the caution-signal is certainly not unnecessary; and experiments published by Dr. C. J. Salomonsen and J. Christmas Dirckinck-Holmfeld, from the Bacteriological Laboratory of Copenhagen, substantiate the value of the admonition. It will be remembered that after a series of experiments, Sattler, of Erlangen, published a statement to show that the active inflammation developed in the eye by the use of jequirity infusion was due to the presence of a bacillus. The exposure of this error as demonstrated by the two observers above mentioned, is detailed in the JOURNAL on p. 613, Ool. II, in the domestic correspondence. The position which they sustained has been so ably supported by others and ceded by Sattler, that it is now a settled, demonstrated fact that the inflammation is due to the presence of a ferment

which Messrs. Bruylants and Venneman have called "jequiritine"—which name bids fair to be adopted.

But whilst a certain unanimity relative to the active agent at work in the effects following the use of jequiritine prevailed, there remained unsettled the question of the bacilli, both as to their peculiarities and the part which they play, if any, in the peculiar pathological changes developed in connection with the use of the jequiritine. To make this question clear, it must be understood that two French observers, Messrs. Cornil and Berlioz, took up the experiments of Sattler, and after erroneously corroborating his work, continued their efforts by injecting the jequirity infusion into the subcutaneous tissues of the lower animals. In every well-conducted experiment the bacilli developed extensively in the blood and the animal died. Moreover, blood from frogs which died under these circumstances, injected into other frogs, also produced the development of the bacilli, and the development of the bacilli was followed by death, associated with the usual well-marked pathological changes, namely: subcutaneous œdema, bloody mucus in the alimentary canal, ecchymosed condition of the mucous membranes, and often a sero-sanguineous fluid in the peritoneal cavity. Moreover, it was claimed by Cornil and Berlioz that when the jequirity infusion was filtered with necessary precautions, the injection produced no effect. Hence it was claimed, and with apparent reason, that the bacilli were the active cause of death. To put this question to a crucial test, Salomonsen and Holmfeld continued their studies, the results of which demonstrated that the bacilli, in themselves, have nothing whatever to do with the cessation of life nor with the pathological changes which accompany it.

Several investigators have made observations which show that on the injection of the *jequirity infusion* into the tissues death follows, and that bacilli are present in the animals thus treated; and Bruylants and Vennemann have shown that when the ferment *jequiritine* is used with frogs death follows in a similar way, but no bacilli are found in the blood or tissues, and concluded therefrom that the frogs were killed by the poisonous ferment alone. S. and H., however, undertook to develop the question as to what the bacilli have to do with the subject, and consequently used in their observations not the jequiritine which B. and V. used, but the infusion which Cornil and Berlioz used. By following the same methods, namely, the injection into the dorsal lymphsac of two drops of a two per cent. infusion, or a very minute drop of a four per cent. infusion, after a gradual muscular weakness, death followed with the characteristic pathological changes above described.

It was found, however, that the bacteria developed varied greatly both in quantity and kind, and, whilst the peculiar bacillus described by Sattler was almost always dominant, several other well-marked varieties were present. It is impossible to follow these experimenters through their whole investigation, which is published in B. 2. No. 19 of the *Fortschritte der Medicin;* we must not omit to say, however, that they cultivated these bacteria from the blood of the frog, and injected them in large quantities into the dorsal lymphsac, and kept watch of them for an indefinite time, and could not perceive that they suffered any inconvenience from the injection. Thinking it might be possible that by the culture on gelatine the bacteria might have lost their virulence, they injected the blood taken directly from the frogs affected. In these instances also, although a relatively large quantity was used, no result followed. In this respect their observations differed from those of the French observers; and they stated their position thus: That frogs subjected to an hypodermic injection of jequiritine die from the effects of the poison with a secondary development of non-virulent bacteria.

To test the question as to whether the bacteria were introduced with the poison, they took several samples of sterilized jequirity infusion and sowed in them different bacteria—the jequirity bacillus, micrococcus prodigiosus, bacillus cyanogenus, and a colorless micrococcus; and after, with due care, demonstrating their pure culture, injected the jequirity infusion thus infected into various frogs, and were rewarded by finding that what they had sown they could now reap in the blood of the various frogs upon which they had experimented.

But the curious and interesting fact is that, unless the frog is subjected to the jequirity poison, these bacteria will not thrive in the blood, and thus it is that the jequiritine in this instance supplies or develops the predisposition for the bacterial invasion. Bacteria injected without the jequiritine diminish and become extinct. After the injection of a large quantity, some few individual germs are found for some weeks, but they also soon disappear.

Contrary to the observations of Salomonsen, Cornil and Berlioz found that the blood of the frogs affected with the jequirity was poisonous to other frogs. Salomonsen has shown this to be the case only when a large quantity of the poison is used with the first frogs, so that the poison when diluted with the affected frog's blood is still strong enough to be

fatal to a second frog. The control experiments were made in this case by showing that when the blood in question was capable of developing the characteristic jequirity inflammation in the eye it was also capable of developing the characteristic poisoning, and when it was not capable of developing the inflammation of the eye it was not capable of poisoning. The explanation given by Dr. Salomonsen why C. and B. did not get any manifestation of poisoning after filtering the jequirity infusion by special precaution, is the possibility that in filtering out the bacteria they also filtered out the poison in question.

This infection of the organism with bacteria, which are in themselves innocuous, Dr. Salomonsen calls a pseudo-infection, which may readily be mistaken for a true infection. Such developments will certainly cultivate caution.

"Aural Thermometry."—Under this title the *Medical Record*, of Nov. 1, 1884, makes mention of a series of experiments conducted by Dr. Flitner, and by him detailed in the *St. Petersburger Dissertation.* By means of a thermometer adapted to the purpose he measured the temperature of the external auditory meatus in health and acute and chronic diseases of the ear. The average temperature in health was discovered to be 98.4° F., while that of the rectum and axilla was about 99° F. Dr. Flitner has drawn the following conclusions: 1. That if the temperature of the meatus be measured daily in the course of acute inflammation of the ear, it will be found to bear a constant uniform relation to that of the system at large. 2. The same may be said when pneumonitis, erysipelas and other acute inflammatory affections complicate the aural disorder. 3. The temperature of the meatus is sometimes higher than that of the rectum, in cases where the affection of the ear is accompanied by morbid processes either of the interior or exterior of the cranium, phlebitis of the sinuses, caries, erysipelas, etc. Hence a more reliable indication as to the progress of the cranial affections may be received from the temperature of the auditory canal than from that of the axilla or rectum, and should be preferred to the latter.

This line of investigation is original, and appears to us to deserve further research. If Dr. Flitner's conclusions shall be substantiated, "Aural Thermometry" will prove a valuable addition to our means of diagnosis. Why may it not be found in future a reliable method of detecting, at their outset, obscure inflammatory processes within the cranial cavity.

Domestic Correspondence.—We cheerfully give place to the letter of Dr. Wilder, of San Francisco, although we fail to see wherein our reviewer was in any measure incorrect in his representation of the paper alluded to. His remark that "no examination can positively determine a man's fitness to be a practitioner," was by no means intended to imply that all examinations are useless, but rather that it is only one of several tests that are necessary to determine a man's fitness for performing the responsible duties of professional life.

Our correspondent in West Virginia will receive proper attention next week.

New York State Medical Association.—As we stated in a previous number, this important organization will hold its annual meeting in New York City, commencing on the 18th inst. and continuing four days. We have assurances that the meeting will be numerously attended and its proceedings full of interest.

The Law Regulating the Practice of Medicine in West Virginia has been decided by the Court of Appeals of that State to be "constitutional and valid." The opinion of the court was delivered by Judge Green on the 1st inst., and is an able review of the questions involved.

A Medical Centenarian.—Dr. Christopher Columbus Graham, of Louisville, Kentucky, recently celebrated his *hundredth birthday* in the enjoyment of a banquet tendered to him by his neighbors.

The eminent professor, Luigi Somma, of Naples, fell at his post of professional duty a victim to the cholera epidemic, on the 19th of September, 1884.

SOCIETY PROCEEDINGS.

AMERICAN ACADEMY OF MEDICINE—NINTH ANNUAL SESSION, HELD IN HOPKINS HALL, BALTIMORE, OCTOBER 28 AND 29, 1884.

The Academy convened at 3 o'clock in the afternoon with President Benjamin Lee, of Philadelphia, in the chair, and was opened with prayer by the Rev. Dr. Grammar, of Baltimore.

The minutes of the last meeting and the report of Council were read and approved.

The following gentlemen were recommended for election by the Council, and upon ballot were duly elected:

Drs. J. H. Baxter, Chief Medical Purveyor U. S. A., Washington, D. C.; Geo. W. Miles, Perryville, N. Y.; A. B. Tadlock, Knoxville, Tenn.; Eugene E. Barnum, Waterport, N. Y.; C. W. Stevens, Boston, Mass.; John A. Robinson, Chicago, Ill.; J. L. Miner, Wilkesbarre, Pa.; H. A. Johnson, Chicago, Ill.; F. S. Johnson, Chicago, Ill.; J. W. Holland, Louisville, Ky.; H. J. C. Wilson, Baltimore, Md.; W. W. Jaggard, Chicago, Ill.; Charles Warren, Washington, D. C.; J. N. Hyde, Chicago; Ira B. Reade, New York; L. S. McMurtry, Danville, Ky.; E. O. Shakespeare, Philadelphia; Douglas Morton, Louisville; M. P. Hatfield, Chicago; T. E. McArdle, Washington; S. M. Free, Dagus Mines, Pa.; F. R. Graham, Chester, Pa.; W. P. Watson, Jersey City, N. J.; J. G. Young, Philadelphia; Joseph Coblenz, Baltimore; J. S. Green, Elizabeth, N. J.; J. M. Stevenson, Pittsburg, Pa.; David Bockes, New York; E. L. Keyes, New York; E. Andrews, Chicago: E. W. Andrews, Chicago; C. Kollock, Cheraw, S. C.; W. Murray Weidman, Reading, Pa.; T. C. Stellwagon, Philadelphia; M. E. Wordin, Bridgeport, Conn.; G. R, Morehouse, Philadelphia; E. Cowles, Somerville. Mass.; F. H. Davenport, Boston; E. O. Otis, Boston; T. J. Turner, Navy Dept., Washington; T. B. Brune, Baltimore.

Drs. Bulkley, Steiner and Bombaugh were appointed a Committee on Nomination.

The first paper of the afternoon was by Peter D. Keyser, M.D., of Philadelphia, entitled "The Relation of the Medical Colleges to Preliminary Education." This relationship was deduced from the statements made by the various colleges in their announcements, and examining these statements and the method of their execution, it appeared that but comparatively few of the 91 medical colleges made any pretence to any real educational requirement, and even among these few, many did not rigidly enforce their own requirements.

"The Examination of Applicants for License to Practice, a means of Raising the Standard of Medical Education," was the title of the next paper, presented by Edward Jackson, M.D., of Philadelphia. A medical college resembles very much a human being in that what it is, depends upon first, its inherent tendencies, and secondly, the surrounding influences. The attempts that of late have been made to raise the standard of medicine, have been to direct the former condition and develop from within. But a great aid would be given if the surrounding conditions were changed. Every college graduates students of all classes, so that a diploma does not possess an equal guarantee of the ability of its possessor to practice the healing art. The need is not to guard so much against colleges as it is to guard against individuals. This can only be accomplished by an independent Board of Examiners in each State. When this is brought about, and the certificate of this Board will be the only license to practice, another factor will be introduced, which will cause that medical Faculty to be most popular whose students more uniformly pass the Board examination, hence a need on the part of medical teachers imparting more thoroughly and examining more carefully before giving their diplomas.

Henry O. Marcy, M.D., of Boston, was the author of the third paper of the afternoon, entitled "The Role of Bacteria in Infectious Diseases," which paper will appear in full in our columns.

"The Trade Aspect of Medicine," by Albert L. Gihon, M.D., Medical Director U. S. N., was the next paper. The object of the paper was to show the great tendency of the times to belittle the profession of medicine to a trade in medicine, to show the meanness in so doing, and to suggest a better way. The author insisted that the men who look at the practice of medicine only as a means of collecting a fee, whose sole aim is to increase the size of one's practice and thereby one's income, who deal in the methods of the shops, ought not to be included among the profession, and if they desire to retain the methods of tradesmen should be so classified. The remedy for this condition rests solely with the profession themselves, who first ought to cast several beams out of their own eyes. Physicians should be ready to say, "I do not know what is the matter with you, and I will not prescribe until I do know;" to frankly say that there is nothing the matter, or that drugs will not cure, to prescribe freely hygienic methods and drugs less, even though it does involve a loss of fees, when it is for the best good of the patient. But the question was raised, how shall one live by the avocation of medicine? The essayist would largely increase the number of hospitals, dispensaries, etc., for the free treatment of all who were unable to pay the fees. But while the treatment should be free, the physicians in charge should receive a competent salary. Instead of, as at present, a young man putting out his sign and waiting for patients, he would be placed in a hospital with a salary sufficiently large to support him, where he would work under instruction.

By this means not only would better work be done, but an opportunity offered for the collection of statistics of disease, a thing now nearly impossible. Then in a short time there will be a demand for sanitary inspectors in every city in the land, where an opportunity will be given for the employment of many. Even now, if the fines were collected for the violation of the existing sanitary laws, they would suffice for an efficient sanitary service. Dr. Gihon thought the position of family physician would be a much more honorable one, if he were salaried as sanitary adviser of the family, and not to depend for fees upon the presence or not of sickness in the family, and thus have his income depend upon the size of his clientage, and not the amount of sickness.

This was the last paper for the afternoon, the Academy going into executive session, when a resolution was adopted that a committee of two should be appointed in each State where the Academy has Fellows, for the purpose of suggesting and furthering the appointment of State Examining Boards independent of the colleges.

EVENING SESSION.

The Academy assembled in the evening for the purpose of listening to the President's annual address —Vice-President Gihon presiding. Dr. Lee selected

for his subject "Differentiation the Test of Civilization: The Specialist and his Education." He alluded to the earlier medical history of Maryland, quoting from its annals "1805, June Medical and Chirurgical Faculty meeting, Faculty endorse vaccination, Faculty agree to license oculists if competent." From which is seen that Maryland early recognized specialists, and that they adopted competency as the qualification to practice. When a nation grows from barbarism towards civilization, there is a marked increase in the division of labor. There is a differentiation, and the many do in parts that which formerly the one did in entirety.

In the learned professions the same process has been going on but it has met opposition. In this country more than in Europe medicine is expansive, while law and theology are fixed sciences, so if anywhere differentiation should be working, it would be in medicine, but here it meets probably the greatest opposition. The arguments of both sides were presented—on the one hand those opposed to the practice of specialties urge: First, that a multiplication of specialties has a narrowing effect upon the doctor. Secondly, it degrades the profession, and third, it is not best for the patient. On the other hand the upholders of specialties say, that specialism is nothing new—indeed, medicine is in itself a specialty, theology and medicine having of old but a single exponent. Then if one recognizes the physician and surgeon, obstetrician or alienist, why not go further. Again, the field of medicine is too vast to be gone over by one man, and if all attempted so to do we should all sink to the dead level of mediocrity. If, on the other hand, one finds enough to employ his mind in a single branch, he then becomes a specialist. The complexity of modern life demands specialism, here as elsewhere differentiation is a test of civilization. The defense calls witnesses and asks if there have not been important contributions to medical knowledge by the specialists. So that with Gamaliel one feels like saying let them alone, for if they be of man, that is if the distinction is forced and unnatural, they will come to naught, but if they be of God, that is of a legitimate natural growth really required by the times, who can prevent them.

It seems clear that the specialist has come, and he has come to stay. Look at the catalogue of any of the great medical colleges twenty-five years ago, and compare it with that of to-day; and observe the great increase in the number of specialist teachers, in branches distinctively special; whether we think of him as the product of a degenerate race, or as the flower of the profession, we ought to make the best of it.

What shall he be—a physician and something more? or something less than a physician? He has need for a broad education in direct proportion to the narrowness of his work. The consciousness of the self-dwarfing is not a pleasant one, so that he should have that foundation that will prevent it. He should even have a higher standard of preliminary training, but as many do not begin to be specialists, can only say that there be no lowering. This Academy will not be willing to adopt the assertion of one of the prominent medical colleges: "The student is presumed to have sufficient medical knowledge." A medical specialist should be first of all a man of culture. Having made up his mind to study medicine, should he stop without studying all of medicine? Assuredly not, for the part that he will treat is but a part of a whole, intimately associated with each other and a knowledge of all is necessary to a study of any. With one exception he ought to have all of the old seven, and that exception is obstetrics, because it is itself a specialty. Having the foundation, then comes the superstructure, whether in Alma Mater or polyclinic, a special degree or license. One thing is apt to be overlooked. Specialists are apt to see and treat disease in chronic forms, which are but the outcome of acute forms of disease, and the specialist should have an opportunity for the study of diseases in the acute form, hence an experience in a general hospital is greatly to be desired.

Such an one will not threaten the profession. He concluded with a brief tribute to Fellows who had died during the year—Dr. F. D. Lente, ex-President of the Academy; Elisha Harris, Secretary of the New York State Board of Health, and Surgeon General Crane, of the Army; and the honorary members Drs. S. D. Gross and J. Marion Sims.

After the address the Academy sat down to its annual collation in the Athenæum Club, having a very pleasant social time.

WEDNESDAY MORNING SESSION.

The Council recommended the election of Drs. George M. Sternberg, U. S. A., and Oliver Wendell Holmes, of Boston, to honorary membership, and the following additional gentlemen to fellowship:

Drs. R. J. Lewis, Philadelphia; J. W. Kerr, York, Pa.; Alex. Hadden, New York; J. D. Kelley, Utica, New York, making 45 in all.

They also presented a series of amendments to the constitution and by-laws looking toward another class of members, associates, who shall consist of those who have attained distinction in medicine and the collateral sciences and do not possess the degree in arts, the qualification of a Fellow. These lay over until the next session under the rules.

The following resolution was also adopted:

Resolved, That the American Academy of Medicine recognizes in the recent munificent gift of W. H. Vanderbilt to the College of Physicians and Surgeons of New York, a most important and valuable service to the science of medicine in America.

That in this spirit the Academy tenders to Mr. Vanderbilt its obligations with the assurance that in no better way could the higher education of our profession and the benefit of humanity be promoted.

The nominating committee reported the following suggestions for officers for the ensuing year:

President, Albert L. Gihon, M.D., U. S. Navy.

Vice-Presidents, R. Stansbury Sutton, M.D., of Pittsburg; Jas. A. Stewart, M.D., of Baltimore; William Elmer, M.D., of Bridgeton, N. J.; J. Cheston Morris, M.D., of Philadelphia.

Secretary and Treasurer, R. J. Dunglison, M.D., of Philadelphia.

Assistant Secretary, Charles McIntire, Jr., M.D., of Easton, Pa.

The report was received and the gentlemen elected.

The first paper of the morning was by R. D. Rockwell, M.D., of New York, on "The Induction Coil; Its Varieties and the Differential Indications for their Use."

Two kinds of electro-magnetic machines are in use by the medical profession, the separate coil and the continuous. By means of diagrams the construction and principle of each were explained. The essayist devoted the greater part of the paper to the therapeutical use of the second class or continuous coil machine. While it is possible to have no less than ten combinations of current, after much experience and careful observation he has concluded that three of these will do the work of the ten.

First, the current obtained from the primary coil, of large quantity and small tension. It is of considerable power, will burn iron and electroplate. It has but slight contractile power upon the muscles in health, but in some pathological conditions will produce muscular contractions far exceeding those brought about by the stronger induction coils. It is of benefit in true neuralgic pains about the head. In cases of asthenopia the tired eye is often relieved and by its continuous use strengthened, it will also frequently remove muscæ volitantes.

Second, a combination of the primary with the first and second induction coils. This gives a current both peculiar and unique. It will electroplate, but will not burn iron. It has the maximum power to contract muscles, each additional coil giving decreased contractility. The current is harsh, sharp and cutting in character, and is of use when a powerful impression is required; hence in not a few cases of paralysis where the response to the galvanic current is perfect, but where there is a diminution of the faradomuscular contractility, this current is better than any other. While in superficial forms of anæsthesia it may be in no way superior to other forms, it is to be preferred in certain persistent forms of lost or perverted sensibility.

Third, the primary in connection with all three induction coils. A very interesting and important combination is made, tonic and sedative in character. The range is wider than the others, and is of use in general faradization. The best constitutional effects are brought about by this form, and it aids in relieving that host of symptoms gathered together in general neurasthenia. The action on the motor and sentient nerves is less severe, and its general effects are more agreeable.

"Some Comparative Results of Treatment of Chronic Articular Osteitis of the Hips," by Dr. P. Gibney, M.D., of New York, was read by title and referred to Council.

L. C. Bombaugh, M.D., of Baltimore, read the next paper, entitled "The Place of the Physician in Literature." This place is a two-fold one—an active and passive condition; the physician may write or be written about. The passive state was the only one to be treated of in the paper. He quoted freely from authors of all ages and climes, showing the esteem or lack of it in which the profession was held. He analyzed the motives of the writers, and traced out the real drift and relative worth of their criticism and irony. The attack upon quacks was upon those in high places, and if the profession had but more carefully examined into many of these attacks, and found that they were but mirrors held up to nature, have laughed with the people, but profited by the caricature, they would have more quickly pruned many of the excrescences; and to-day as well as for the future, if to-morrow is to be as to-day, there is ample opportunity for other Molieres if "machine-made doctors who have no aspirations beyond the trade aspect are to be assigned a share in the work of filling the gaps in preventive medicine and sanitary science, of making nearer approaches to infallibility in our etiology, of developing knowledge of micro-organisms, of probing the depths of hereditary and constitutional taint, of strengthening expert testimony in medical jurisprudence, of inquiring into new types of disease occasioned by new forms of manufacturing industry, of introducing improved remedial measures and demonstrating their efficiency, of learning more of climatology and the geographical distribution of disease, of hastening the removal of the *opprobria medicorum*, and so on to the end of the long, long chapter."

"Observations in One Hundred and Thirty-seven Abdominal Sections," was the title of a paper by R. S. Sutton, M.D., of Pittsburg. The cases upon which these observations were founded were operated on by various operators in America and Europe, twenty-nine of them being by myself, comprising the various forms of abdominal section. Cases for McDowel's operation are, as a rule, a comparatively poor class of patients, and in the United States the rule has been to operate after the health of the patient has been broken and at her home. In England, Scotland and Germany, early ovariotomy in a special hospital is recommended, while in Austria the cases are farther advanced, and the operation made in the general hospital, and the results obtained are not so good. There is a time in every ovarian tumor when there are no adhesions and the operation almost without danger. If by neglect of the patient or bad medical practice, she is treated with the trocar and persuaded to wait until death stares her in the face before operating, the risks are greatly increased. He has been gradually approaching the following conclusions:

First. Nearly all cases of ovarian cystomata recover if operated on early and under proper precautions.

Second. A very large number of cases of ovarian cystomata die if operated on in their own homes under ordinary precautions.

Third. That simple cases and a well regulated special institution for the work will always be the mainspring of success in McDowel's operation.

An ovariotomy done early may be considered one of the easiest of surgical operations, but a neglected case is a very different affair. After the completion of the operation it is most important to leave the cavity of the peritonæum dry. As a rule, the younger subjects do best, but the elder subjects bear the oper-

ation well. Climatic influence has very little effect. The details of antiseptic precautions need not be taken, but thorough cleanliness must be insisted upon. The methods of operating differ very much; the simpler methods are preferable. The prevention of the loss of blood is of the greatest importance. In supra-vaginal hysterectomy the question of the disposition of the pedicle is still *sub judice*. Where a cyst is multilocular a trocar should be used, and as the cysts are emptied the abdomen should be filled with warm sponges that the intestines may be protected from chill. Adhesions are best treated by ligation and division with Paquelin's cautery. The best super-dressing after hysterectomy with the stump outside is iodoform gauze. Drainage in intra-abdominal operations should only be resorted to in cases when it is not certain that the bleeding is all arrested; where many adhesions were divided without the cautery, and when the peritonæum is so irritated that it is almost certain to throw off much serum.

At the conclusion of Dr. Sutton's paper the Academy took a recess and visited the very handsomely equipped chemical and biological laboratory of Johns Hopkins University.

Upon reconvening there was a spirited discussion upon Dr. Sutton's paper, participated in by Drs. J. Tabor Johnson, of Washington; E. H. M. Sell, of New York; H. O. Marcy, of Boston; and H. J. C. Wilson, of Baltimore. The views of the essayist were generally agreed to, the chief exception being that an operator should never refuse to operate no matter how desperate the case. The discussion was closed by Dr. Sutton.

The last paper of the session was by L. Duncan Bulkley, of New York, entitled, "Specialties and their Relation to the Medical Profession. The following conclusions were reached:

1. The science and practice of medicine is so vast that it is beyond the power of one mind to grapple with it all.

2. Divisions of study and of practice have unconsciously been made.

3. Specialists are those who devote excessive attention to their branches.

4. By the development of these they have increased the scope of medical knowledge.

5. Everyone should be more or less a specialist, in that he should know or do some one thing better than another.

6. Specialists should have a thorough training in general medicine in addition to their special preparation.

7. Specialties will limit themselves by the law of supply and demand, and by the increase of the teaching of special branches in the medical schools, thereby giving the general practitioner greater knowledge in these departments.

Drs. Herman Knapp, and F. M. L. Chrystie, of New York, were prevented from attending the meeting. Dr. Nathan Allan's paper on "Physiology in Its more Public Relations," was read by title and referred to Council.

The report of the standing committee on "Laws Regulating the Practice of Medicine," showed such regulation in one State, Virginia, since the last meeting.

Dr. Lee, the retiring President, made a short valedictory address, and introduced the President-elect, Medical Director A. L. Gihon, who made a short salutatory.

The President appointed Drs. L. Duncan Bulkley and E. H. M. Sell additional members of Council.

Votes of thanks were tendered to the retiring President for his efficiency and the authorities of Johns Hopkins University for their courtesy. The Academy then adjourned to meet in New York in 1885.

After adjournment many of the Fellows visited the Johns Hopkins Hospital under the guidance of Dr. J. S. Billings.

CHICAGO SOCIETY OF OPHTHALMOLOGY AND OTOLOGY.

JUNE 9, 1884.

The society convened as usual in the parlors of the Illinois Charitable Eye and Ear Infirmary. The following gentlemen were proposed for membership: Dr. Ira Marshall, Dr. Casselberry, Dr. W. H. Fitch.

Dr. Holmes made a verbal report of an interesting case in which, two months after a very successful extraction of cataract, he divided extremely delicate capsular remains with a Knapp's needle knife. The patient was much elated at the great improvement of her sight.

After a few days the patient complained of irritation, although she had been confined to her room constantly and to her bed four days. The eye had been under the influence of atropine and boracic acid. The conjunctiva especially of the lids was red. A small mass of mucus (?) was found on the edge of the lower lid and adherent to the globe. On the removal of this collection it was observed that a minute filament extended from the needle puncture down over the cornea. There had been no pain. On the eighth day vision had not suffered. More or less pain soon followed with slight increase of tension. Eserine was substituted for the atropine.

It was observed that a very fine thread-like opacity extended into the vitreous. In a few days the vitreous became more and more cloudy, the conjunctiva red and œdematous and the eye painful. In a week more the patient was unable to count fingers.

The reporter was inclined to believe that the inflammation was not caused primarily by the injury of the intra-ocular tissue, but secondarily by the entrance of germs through the puncture from the *minute prolapse of vitreous*.[1]

After the conclusion of these remarks, Dr. Holmes invited the members to repair to the patient's room and examine the case at their leisure. The case was discussed at length. Owing to the great interest attached to it, Dr. Holmes was requested by a vote of the society to prepare a paper on his experience in secondary operations for cataract.

[1] We have since learned that the patient has greatly improved in all respects. Her sight especially is now quite good.

Dr. E. J. Gardiner read an exhaustive paper on "Boracic Acid in Ocular Therapeutics." No further mention is made of it here as it will soon appear at length.

AUGUST 12, 1884.

Drs. Marshall, Casselberry and W. H. Fitch were elected to membership.

Dr. Hotz presented a pathological specimen, with the following history: Mary S., aged 4, was first examined August 1, 1884. About ten days previously, without injury or any other manifest cause, the left eyeball became violently inflamed. She slept well, and never complained of pain. One or two days before her visit to the doctor's office the patient was apparently sick; she had no appetite, and no desire to play as usual.

Before this inflammation set in, the left eye had the same appearance as the right. The following changes were noted by Dr. Hotz, August 1: Intense episcleral injection, interstitial haziness of cornea, retraction of iris in consequence of which the anterior chamber was abnormally deep. Pupil invisible, three-quarters of the anterior chamber being filled with a grayish white substance.

Aug. 11, upper anterior portion of sclerotic discolored and distended (staphylomatous); injection of eyeball more intense; condition of cornea the same; anterior chamber filled entirely with the grayish white substance. The eyeball was enucleated and at once opened by a meridional section. Vitreous appeared wine-colored and cloudy in its anterior half, the cloudiness being most dense near the region of the ciliary processes and anterior limitans, which appeared densely white. Lens intact; pupil contracted; anterior chamber filled with a whitish red vascular substance 2 mm. thick; it cannot be separated and distinguished from the iris tissue, and is firmly coherent with the posterior surface of the cornea. At the corneo-scleral margin the anatomical boundaries of the various tissues are lost; all blend with the mass, which has invaded cornea, sclera and ciliary body.

There is no trace of ciliary processes. The surface from ora serrata to pupil is perfectly flat and smooth. The posterior part of the eye has a normal appearance. The doctor expressed the opinion that the growth might prove to be a so-called granuloma on microscopic examination.

Dr. Boerne Bettman then read a paper on Amaurosis following Hæmorrhage. The two cases cited offered certain symptoms which, according to the doctor's opinion, pointed to a common cause, namely, to intracranial hæmorrhage with subsequent alterations of the optic nerves. The first case, Margaret Feth, æt. 24, was admitted into the Eye clinic of Heidelberg in 1879. She is of healthy parentage. Patient had repeated attacks of convulsions up to her fifth year. Several brothers and sisters, seven in all, died a few months after birth from the effects of convulsions. Miss F. was a healthy, well-nourished child. Menstruation set in at the age of 16. On the 17th of May, 1879, while at home, she suddenly experienced severe pain on the left side of her head, accompanied by dizziness and severe spells of vomiting. The pain increased during the night. A physician was hastily summoned; he prescribed powders which apparently intensified the nausea and emesis. On the 21st, a second attack of sudden dizziness came on while in bed. She became unconscious, and remained in this condition 24 hours. While in this state, a large quantity of dark-colored blood was seen to well from her mouth by her parents. On coming to her senses, everything appeared dark about her. Investigation showed her to be perfectly blind. Sight returned to the right eye during the course of the day. A third attack of unconsciousness followed a few days afterward, leaving the sight of the right eye very much impaired. On the day of admission into the clinic there was complete amaurosis. Both pupils were dilated *ad maximum*. Irides did not respond to light. The ophthalmoscope revealed pronounced atrophy of both discs. Treatment of all varieties proved of no avail.

The second case was that of a boy, George Dohl, æt. 3. The child fell against a chair, striking the upper teeth. The gums bled for three days, followed by severe convulsions which lasted fully 48 hours. After the first 24 hours, during an interval of consciousness, the parents noticed that the child had lost sight in both eyes.

Ten days after the injury the child presented the following appearance: Pale, weak-looking boy; pupils dilated *ad maximum;* reaction to light prompt; media both eyes clear; papillæ very anæmic, almost perfectly white; caliber of arteries somewhat diminished; veins perhaps somewhat dilated; amaurosis. The prognosis was unfavorable. Particular pains was taken to call the attention of the parents to one favorable feature of the case, the prompt reaction of the irides, which was interpreted as a sign of partial restoration of vision. Sight gradually returned sufficiently to enable the child to roam about the house. Eight weeks after the accident a second attack of convulsions ended fatally. The various theories of Graefe, Sammelsohn and Leber were then discussed.

The next paper was by Dr. Jefferson Bettman, entitled "Fracture of Base of Skull with Complication of Vago-Accessory Nerves."[1]

Dr. Holmes made a verbal report of an unusual case of upward strabismus. A boy, 13 years of age, had suffered from very early childhood from a peculiar turn of the right eye upward, which occurred about every half minute. There was not a quick spasmodic motion as in chorea, but a slow movement as in certain cases of convergent strabismus. During the contraction of the levator superioris more than three-quarters of the cornea was concealed under the upper lid; the vision with $-1/48$ cyl. 90° was normal. Neither by the use of prisms or any other means could diplopia be induced. A division of the superior rectus almost absolutely relieved the annoying action of the muscle. At the end of three months the patient reported no return of the anomaly.

BOERNE BETTMAN,
Secretary.

[1] This case will be found in full in the department for Original Articles.

REGULAR MEETING OF THE CHICAGO GYNÆCOLOGICAL SOCIETY, OCT. 31, 1884.

In conformity with an ancient custom, the members of the Society met at the residence (271 Michigan Ave.) of the retiring President, Dr. A. Reeves Jackson, and were entertained by an elegant and elaborate banquet. After the banquet, the President called the meeting to order. The following officers for the ensuing year were elected:

President, Dr. H. P. Merriman; 1st Vice-President, Dr. E. C. Dudley; 2d Vice-President, Dr. Charles Warrington Earle; Secretary and Treasurer, Dr. Edward Warren Sawyer; Editor, Dr. W. W. Jaggard.

After an appropriate address by the retiring President, the Society adjourned to meet Friday, Nov. 21, at the residence of Dr. C. W. Earle, 535 Washington Boulevard, Dr. Edward Warren Sawyer to open the discussion of "The Premature Expulsion of the Ovum." W. W. J., Editor.

2330 Indiana Ave., Chicago, Ill.

STATE MEDICINE.

HEALTH IN MICHIGAN, OCT., 1884.

Reports to the State Board of Health, Lansing, by observers in different parts of the State, show the diseases which caused most sickness in Michigan during the month of October (5 weeks ending Nov. 1), 1884, as follows:

Number of Weekly Reports Received, 225.		For Preceding Month.
Diseases Arranged in Order of Greatest Prevalence.	Per Cent. of Reports Stating Presence of Disease.	Per Cent. of Reports Stating Presence of Disease.
Diarrhœa	75	88
Intermittent fever	72	84
Rheumatism	67	61
Neuralgia	64	57
Consumption of lungs	60	62
Bronchitis	56	44
Remittent fever	52	59
Dysentery	44	56
Tonsillitis	44	31
Influenza	37	24
Typho-malarial fever	36	27
Cholera morbus	31	62
Erysipelas	28	22
Cholera infantum	28	51
Typhoid fever (Enteric)	25	15
Pneumonia	22	13
Diphtheria	22	19
Inflammation of bowels	22	21
Inflammation of kidney	22	18
Whooping-cough	16	22
Scarlet fever	9	11
Inflammation of brain	8	8
Membranous croup	8	3
Cerebro-spinal meningitis	7	5
Measles	6	10
Puerperal fever	5	6

For the month of October, 1884, compared with preceding month, the reports indicate that influenza, tonsilitis, bronchitis, typhoid (enteric) fever, pneumonia, typho-malarial fever, and neuralgia increased, and that cholera morbus, cholera infantum, diarrhœa, dysentery, intermittent fever, and remittent fever decreased in prevalence.

Compared with the average for the month of October in the six years, 1879–1884, dysentery, diarrhœa, cholera infantum, and cholera morbus were more prevalent, and intermittent fever and typho-malarial fever were less prevalent in the month of October, 1884.

For the month of October, 1884, compared with the average of corresponding months for the six years, 1879–1884, the temperature was slightly higher, the absolute humidity and the night ozone were slightly more, and the relative humidity and the day ozone were slightly less.

Including reports by regular observers and others, diphtheria was reported in Michigan in the month of October, 1884, at 40 places, namely—Armada, Ann Arbor, Adrian, Albion, Big Rapids, Coldwater, Charlevoix, Detroit, Douglas, Edmore, East Saginaw, Fowlerville, Garfield, Grand Haven, Grand Rapids, Handy, Houghton, Hastings, Hartford, Howard City, Kalamazoo, Lyons, Port Austin, Lansing, Leelanaw, Marcellus, Muskegon, Meredith, Mendon, Manistee, Northport, New Buffalo, New Haven, Port Huron, Reynolds, Romeo, Sand Lake, Springwells, Wyandotte, Whitehall; scarlet fever at 19 places—Burr Oak, Coldwater, Columbiaville, Cadillac, Detroit, East Saginaw, Grand Rapids, Ishpeming, Jasper, Kalamazoo, Leelanaw, Manistee, Muskegon, Portland, Vicksburg, Wyandotte, Albion, Cedar Plains, Roxand; and measles at 6 places—Detroit, Cadillac, Ithaca, Marcellus, Whitehall and Wyandotte. Henry B. Baker, Sec.

Lansing, Nov. 7, 1884.

REPORT ON THE PREVENTION OF EPIDEMIC CHOLERA IN AMERICA.

[Adopted by the American Public Health Association and the Conference of the State Boards of Health.]

To the Conference of State Boards of Health:

Mr. President and Members:—Your committee, to whom was referred papers relating to the practical work required for the prevention of epidemic cholera in this country, respectfully report as follows:

ORIGIN AND DISSEMINATION.

There are three essential factors to the prevalence of cholera in this country as an epidemic,— (1) the importation of the disease by means of ships more or less directly from its only place of origin in India; (2) local unsanitary conditions favorable to the reception and development of the disease; (3) persons sick with the disease in some of its stages, or things infected by such sick persons, to carry it from place to place. These three factors naturally suggest the methods of combating the disease, for which there is needed practical work,—international, national, and inter-state, state, and local. So far as relates to state and local boards of health, their organization and activities are greater than ever before; but it must be admitted, that after cholera has been introduced into a country, inland quarantines are not easily

and successfully maintained, although efforts in this direction are then advisable.

In view of the threatened introduction of cholera into this country during the coming year, and the consequent immense waste of life and property values through derangements of commerce, trade, and productive industries, it is the sense of this conference that the general government should maintain such a national health service as shall, by rigid inspection at the port of embarkation, question the freedom from disease and infection of all persons and things from infected districts, and shall secure the surveillance of such persons and things while on shipboard, and, when necessary, detention at quarantine stations on this side for treatment and disinfection.

OFFICIAL INSPECTION.

In view of the present threatening aspect of Asiatic cholera, and the constant danger from other communicable diseases occurring at foreign ports having commercial relations with the United States, we urge upon congress to provide for the appointment and maintenance at all such foreign ports where cholera, yellow fever, plague, small-pox, or scarlet fever exists, or are liable to exist, of medical officers of health, the same being either accredited consuls, or attached to the consulates. The duties of these officers shall be to give notice, by telegraph when practicable, of the existence or appearance of any of the above named diseases to some constituted authority in this country; to give notice of the departure of any vessel known or suspected to be infected for any port in the United States; and, whenever requested by the master of any vessel about to load or leave for this country, to inspect thoroughly such vessel in all her parts, and also her cargo, her crew and passengers, to use such cleansing and disinfection as he may deem necessary, and to satisfy himself that all persons about to sail are free from dangerous communicable diseases, are not recently from infected places, and are properly protected from small-pox, giving to her commander a certificate of the inspection, and of all precautionary measures taken. And it shall be the duty of the central authority in this country promptly to transmit intelligence of the existence of the above mentioned diseases at foreign ports and places, and of the departure of dangerous vessels for the United States and Canada, to all state and local health authorities in the country which may be interested in the same.

We further recommend, in case of those foreign ports which have no consular agents of this country or no telegraphic communication with this country, and which are liable to transmit pestilence through commercial intercourse, that one or more medical officers be chosen to visit such ports as often as may be deemed necessary by the central health authority in this country, so as to give trustworthy information of the health and sanitary condition of those places.

CANADIAN HEALTH ALLIANCE.

Inasmuch as the Dominion of Canada is equally interested with the United States in protecting itself and the United States from the importation of dangerous diseases, we suggest that congress take such measures as will bring about concerted action with the Dominion and the British government, by which the consuls of this country or of England at foreign ports shall examine and take such action as they may deem effective, and notify the authorities of such government as has authority over any port to which any ship may sail in the United States or Canada, in order that such government may be in a position to take effective measures against the importation of these diseases.

We are gratified that the authorities of the Dominion of Canada and of the Province of Ontario have taken active steps toward protecting the people of Canada, and indirectly those of the United States, by the adoption of extensive quarantine regulations. We feel, however, that with respect to those regulations regarding the landing of passengers from the mail steamers along the St. Lawrence, etc., further special regulations for the thorough disinfection of the baggage and effects of all passengers, cabin or steerage, as come from infected ports or places, should be carried out in a manner similar to that recommended by the National Board of Health. Believing that the importation of cholera into this country has usually attended the presence of immigrants from infected countries, we therefore recommend that all such immigrants be prevented from landing at our ports until such time as the danger of the introduction of cholera by them shall have passed.

The inspection and quarantine service inaugurated by the National Board of Health, and set forth in the paper by Dr. Smart before this conference, but which system is now inoperative for want of an appropriation by congress, meets with our cordial approval. To enable these protective measures to be carried out, we recommend that congress be urged in the strongest terms to legislate on this subject at an early date in its coming session, and to appropriate such funds as may be needful. The expenses incident to the work which has to be performed at foreign ports, and the establishment of refuge stations at points on our own coast for the detention and treatment of infected vessels arriving from foreign ports, should undoubtedly be borne by the national government, and not by individual States or municipalities; for the benefits accruing therefrom are general, and not restricted to localities, although some ports and cities on the coast may have a more immediate interest in the matter than others in the interior. It is probable, however, that this national protective work may not be sufficient.

LOCAL SAFEGUARDS.

It will undoubtedly delay and lessen the chances of invasion, but it may not prevent invasion. The poison of the disease is subtle, and may effect an entrance into the country at some unguarded point. The funds necessary to the stamping out of the disease in a particular locality, and to the prevention of its spread to other localities, might in some instances be borne by the municipality or state affected; but should the disease occur in a locality which has failed or is

unable to make provision for the occurrence, its spread to other cities and states would be imminent. The want of means at the infected point would be disastrous to many others. Congress has recognized the necessity for aid to state and local boards of health under similar conditions in the case of yellow fever. In 1879 the sum of $500,000 was appropriated, and placed at the disposal of the National Board of Health; and the records show that of this sum $160,000 was employed in combating the epidemic of that year. We therefore recommend that the influence of this conference be used with the view of having appropriated by the national legislature the sum of $500,000, to be used, or as much thereof as may be needful, in case of a cholera invasion, in stamping out the disease from the infected localities, and in preventing its spread from state to state.

The removal of local unsanitary conditions favorable to the development of cholera is the special work of state and local boards of health. Much has been done already in some states, but much remains which should receive immediate attention. Where it can be done, state sanitary inspectors should be appointed to visit all towns and cities specially liable to the disease, to counsel with the local authorities as to the best methods of prevention. This work should be vigorously prosecuted before the disease reaches our shores.

ADVICE TO CITIZENS.

The cause of cholera is contained in the discharges from persons affected by the disease, or in things infected by such discharges. Should the disease reach our shores, the first case, and after this the first case which reaches any given community, should be strictly isolated. All infective material from these and from any subsequent cases should be destroyed in such manner as to stamp out the disease. Intelligent sanitary precautions beforehand, and scientific disinfection and treatment in the presence of the disease, should take the place of the necessary cruelties of a panic. In case any city or town is infected, the same principles of isolation should in general be applied to the city as to the infected individual. Intercourse with other cities and places should be under sanitary supervision, substantially as set forth in the rules and regulations of the National Board of Health respecting the inspection of travellers, disinfection of effects, vehicles, etc.

Health officers and inspectors appointed by state or provincial boards of health should, in addition to other sanitary work, see that the localities have set apart, erected, or planned to be so set apart or erected, structures which shall possess the sanitary requirements of an isolation hospital. But as regards all necessary work by local boards of health, most state and provincial boards of health have printed and issued documents which give ample instruction.

Your committee recommends that when this conference adjourns it be to meet in Washington, D. C., the second Wednesday in December next, and that the secretary of this conference be directed to invite the attendance at that time of the quarantine officers and the health officers of the principal cities in the United States and Canada; and that all delegates to that meeting be prepared to report the sanitary status of their state or locality, and what steps have been taken to improve the same, and to prevent the introduction of disease.

All of which is respectfully submitted.

HENRY B. BAKER,
Secretary State Board of Health of Michigan,
H. P. WALCOTT,
Chairman Health Department of Massachusetts,
S. S. HERRICK,
Secretary State Board of Health of Louisiana,
PETER H. BRYCE,
Secretary Provincial Board of Health, Ontario, Canada,
JOHN H. RAUCH,
Secretary State Board of Health of Illinois,
COMMITTEE.

Adopted by the Conference of State Boards of Health at St. Louis, Mo., October 14, 1884.

ERASTUS BROOKS,
President of the Conference of the State Boards of Health.
J. N. McCORMACK,
Secretary of the Conference of State Boards of Health.

Adopted by the American Public Health Association at St. Louis, Mo., October 15, 1884.

ALBERT L. GIHON,
President American Public Health Association.
IRVING A. WATSON,
Secretary American Public Health Association.

DOMESTIC CORRESPONDENCE.

215 GEARY ST., SAN FRANCISCO, CA., Oct. 27, 1884.

EDITOR OF JOURNAL OF AMERICAN MEDICAL ASSOCIATION:

Dear Sir:—In your issue of the 11th inst. you were pleased to notice at some length my paper on "Old and New Codes," read at the meeting of the California State Medical Society in April last. I think you have drawn some erroneous conclusions from my proposed plan for the establishment of a "caste" in the profession, and I venture to explain more at length my ideas in this direction. It was far from my thoughts to attempt the formation of an aggressive organization; that partakes too much of legislation methods, which have always proven utter failures in the past and will most certainly continue to do so in the future. There is no doubt of the truth of your statement that "no examination can positively determine a man's fitness to be a practitioner," and "his success in the actual conflict with disease is the only true criterion by which his merit can be judged;" but allow me to ask whether you would hesitate for one instant as to which class of men you would select a doctor from, provided you had no personal acquaintance with the individual. From among those whom you knew had passed a thorough and critical examination in all the tenets of the profession, or from the great mass of so-called medical men who come from nobody knows where? You who have had such good opportunity of knowing, through the earnest work of your State Board of

Health, the perfect ease with which a diploma can be obtained from many of the medical schools of the country, and who, at the same time, stand at the head of the accredited organ of the American Medical Association, can illy afford—so it would seem to me—to make use of the veritable arguments of the "Sweet Family," "natural bone-setters," and others of like ilk.

Will you kindly inform me why, when our Government in the early days of 1861 found a great necessity existing for reliable medical men, it established through Congressional enactment a special corps of surgeons and assistant-surgeons under the name and title of Surgeons and Assistant-Surgeons U. S. Vols. General Staff, and designated their duties as being confined to such positions as Medical Directors of Army Corps, Division and Brigade Surgeons, Surgeons in charge of General Hospitals, and Medical Inspectors of Armies and Departments? And also, why all applicants for these positions were obliged to submit to a rigid examination before an Army Board appointed for that special purpose? And also, why, as a further criterion, no person successfully passing said examination should receive the appointment of Surgeon unless he was at least 30 years of age?

Has not Dr. Gihon set forth in most striking terms the utter absurdity of many of the examinations made before the Army Medical Boards of to-day, and shown the shameful ignorance manifested by many of the applicants for positions?

The facts are as I have stated. In our country, under the existing form of government, there can never be any limit placed *by law* upon the number of medical schools that shall graduate students. Neither can there be any uniform standard of requirements for such graduation enforced. We must face these facts; no logic, no reasoning, no anything will change them. The consequence is that our entire country is flooded with graduated doctors, good, bad and indifferent, but in swarms and multitudes. I am not taking into account the armies of quacks and irregulars, only those supposed to be regulars.

How is it possible for the people to select from these masses with judgment? It is in this extremity that I ask relief in the establishment of higher grades in the profession—not in the spirit of *aggression*, but in the spirit of *progress*.

As in our civil war the surgeons and assistant-surgeons, U. S. Vols. Gen. Staff, were on a par with the medical officers of the regular army, by reason of the increased demands in the way of examinations, etc., made upon them by the government, and which were not made upon the great bulk of surgeons and assistant-surgeons appointed from the different states; and as a commission in this special corps placed its possessor at once and without hesitation, on a certain established basis, so I would have in the great professional field higher organizations, entrance to which can only be had except by the attainment to certain standards, then a diploma, or certificate, or whatever might be used to signify that the possessor had complied with the requirements, the fact of such possession would give him recognition at once.

I would not have you or any one else infer that I for one moment could or would convey the impression that there were not just as eminent medical men, just as able surgeons on duty with the regiments from the different states during the war as could be found in the regular Army Corps or that of the U. S. Vols. Gen. Staff. Nor would I dare to say that in the rank and file of the profession there might not remain men infinitely superior to those entering the higher grades. What I do mean to say, is that the possession of a higher title would give a man recognition at once wherever he might be, or wherever he might go. Neither the laity or the profession could make any very serious mistakes in demanding his services, either for advice or consultation. At the same time it would be a direct stimulant to a higher education, and those schools that did not bring their matriculants up to the required standard on final examinations, would find themselves dropping out of the race for want of material.

I send you this as a letter, and ask you to publish it as correspondence. You may criticize as severely as you will, only give me opportunity for reply.

Very truly yours,

A. M. WILDER, M.D.,

Late Surgeon and Brevt. Lieut.-Col. U. S. Vols. Prof. Ophthalmology and Otology Med. Dept. University of California.

PHILADELPHIA LETTER.

PHILADELPHIA, OCT. 31, 1884.

Dear Doctor:—Our schools are fairly at work, and it would seem as though with the array of talent offered in our city that we ought to educate *medically* to a certain extent. What we do turn out, may seem good enough for the outside world, but it would seem as though for home use it were of no value. We are led to this view by the recent selections by two of our schools. The Jefferson has always preferred to import her professors, and perhaps she knew so well the calibre of her graduates that she had reason to look elsewhere. But now comes the University whose trustees are compelled to look to a foreign land for the occupant of a chair. As if to confirm the view as above, our almshouse has been compelled to import its head nurse from England. We have had for many years her Nurse Training Schools actively at work, but neither seems capable of producing results fit to carry on the work required in the great hospital connected with the almshouse.

The old plan is reversed. In place of going abroad to study, we import teachers, and perhaps at some distant day we may educate men and women fit to take their places.

Our city is dirty, but healthy. Dirt alone does not seem to produce disease. Thanks to the wretched paving, it is difficult to clean the streets, and thanks equally to official inefficiency they are not cleaned. Our daily papers almost constantly growl over this state of things, but it is of no consequence. Should the cholera approach, we may expect a spasmodic effort when too late. But after all, it reminds one of a paper on Cholera Infantum read some years ago before

our local medical society in which the author announced that the disease was the result of filth and heat. When he had concluded, a member asked, if that were true, how was it possible that any of the children in a certain locality escaped, inasmuch as said neighborhood was remarkable for its filth, and yet during the summer just passed, cholera infantum, in fact all forms of disease had failed to occur, and the whole region was as remarkable for its health.

Speaking of medical societies brings up the fact that our County Medical Society now numbers its members up to about 500. This is the union of all specialists and general practitioners; while the Pathological, the Obstetrical, the Neurological, the Medico-Legal, etc., devote their evenings to the subjects after which they are named. Judging by the volumes put forth, each body seems to succeed in evolving from its members a goodly share of work.

Our clinics under the name of dispensaries and hospitals are numerous, and show that not only the younger members of the profession but many of the older ones devote a goodly portion of their time to free prescribing. We had nearly said "for the poor," but this would have been a great error. Fully half of those who apply at such places are abundantly able to pay for both medicine and advice. We have just been told of a case now receiving first-class advice at a public clinic, yet the patient is the daughter of a man owning four horses, several houses, and who is doing an excellent business. Knowing these things, is it any wonder that our profession is crowded here? or that the members must resort to a variety of plans to keep the wolf from the door? Yours,

PHILADELPHIA.

OVARIOTOMY.

TO THE EDITOR:

Dear Sir.—In your issue of October 25, you publish a letter from Prof. Donald McLean, of Detroit. In this he corrects his statement of statistics, *made in Washington last May*. At that meeting he said that from Oct. 1, 1883, to May, 1884, he had done *five ovariotomies*, and that all the cases had recovered. He now says that *one* of these cases died. That leaves him then with *five* ovariotomies from Oct. 1, 1883, to May, 1884, with *one* death and *four* recoveries. Now, I have in my possession a copy of the death certificate of *another*. She died on the 30th day of January, 1884, at Lansing, Mich. Will Prof. McLean recall this case also?

Very respectfully yours,

R. S. SUTTON.

419 Pennsylvania Avenue, Pittsburgh, Pa.

BOOK REVIEWS.

ON TUMORS OF THE BLADDER, their Nature, Symptoms and Surgical Treatment, Preceded by a Consideration of the best Methods of Diagnosing all forms of Vesical Disease, including Digital Exploration and its Results, by SIR HENRY THOMPSON, F.R.C.S., M.B., etc. Phila.: Blakiston, Son & Co. 1884 Pp. 110 (with six plates).

We believe this monograph is the first important contribution to the new and important question of digital exploration of the bladder.

Although the work is entitled "Tumors of the Bladder," yet the vital part of it is contained in the discussion of cystotomy as a justifiable resource in obscure cases of bladder disease, as a step toward diagnosis by digital exploration of the interior of that organ.

This is true first, because no case of tumor can be diagnosed or treated without cystotomy as a preliminary step, and, secondly, because the operation, which is not a serious one, gives marked relief in a large number of cases, even where no tumor is found which can be removed. The relief thus seen to follow, is due to the perfect *rest* from distension, tenesmus and catheterization which the perineal opening allows to the inflamed organ.

Primarily, therefore, this little book sets out to approve and justify the opening of the bladder for exploration in a large number of cases which heretofore have baffled surgical skill. As this is a question which has for some years been pretty frequently in the minds of surgeons on theoretical grounds, the present contribution will be regarded as settling a vexed question, so far as one man's authority can decide.

In speaking of a tumor found at the autopsy on a case of fatal bladder disease, Sir Henry says:

"It was clear to me from this case that the ordinary sound, "a lengthened finger" in practised hands, had proved incapable of giving me sufficient information relative to the presence of a considerable growth within the bladder. Supposing that I could but once have put my real finger there, instantly discovering, as I should have done, that easily removable tumor, how different would have been the issue of that unhappy case! He might have been enjoying life and health to-day. What, then, was to prevent me in future, under circumstances of equal gravity and like obscurity, from determining the presence or absence of such a growth by the direct sense of touch, as I could easily have done had the necessity for applying it ever occurred to me? The questions, therefore, naturally presented were: Might it not be possible to examine with my finger the whole interior surface of the bladder; and, if so, from what region could such exploration be most easily and safely accomplished—from the perinæum or from the pubes?"—Pp. 10–11.

Here we find stated at once the *rationale* and the justification of the operation for digital exploration of the bladder.

Histories in detail are given of forty-three cases where it was performed. In twenty of these tumors of the interior of the bladder were actually found present and removed. In most of the remainder marked relief followed the operation. Six admirable colored plates and a number of engravings add to the clearness of the work. E. W. A.

AN AID TO MATERIA MEDICA. ROBERT H. M. DAWBAIN, M.D., New York. J. H. Vail & Co. Cloth, 86 pp.

Contains Drugs, Officinal Preparations, their strength, dosage, etc. Table of the solubility of chemicals in water and alcohol. Simple methods of metric prescription writing. The author's rule for

teaspoonful doses is this: For a two ounce mixture order 60 c.c. to contain 1 gm of the drug to each grain in the dose. C. E. W.

ELEMENTS OF PHARMACY, MATERIA MEDICA, AND THERAPEUTICS. By WILLIAM WHITLA, M.D.(Q.U.I.), Physician to the Belfast Royal Hospital; Consulting Physician to the Ulster Hospital for Diseases of Women and Children; Vice-President of the Ulster Medical Society, etc. With Lithographs and Woodcuts. Second Edition. London: Henry Renshaw, 356 Strand. 1884.

This is a book of 602 small and rather closely printed pages, in the less expensive English style of publication.

The first 100 pages are devoted to Pharmacy; the next 124 to Materia Medica; then 189 to Therapeutics; 59 to New Remedies; and the remainder to the Administration of Remedies, Prescription Writing, Chemical Reactions, Weights and Measures, and a copious Index. The subjects in each division of the work are treated of in alphabetical order.

Of course, when so much is included in so small a compass, everything must be treated in the briefest manner; yet for quick and brief references this work will be found both convenient and useful. From Jansen, McClurg & Co., Chicago.

NECROLOGY.

SOUTHWORTH, CHARLES T., M.D., of Monroe, Michigan, was born in Chenango County, New York, May 19, 1827, and died August 12, 1884, in the 57th year of his age.

In 1835, his father, who was also a physician, removed to Monroe, Mich., where he practiced medicine until his death, which occurred in 1843. The son was then placed in a select school where he prepared for college. He afterward went through the Freshman class at Oberlin, Ohio, and the Sophomore and Junior years at the University of Michigan. His father's death called him home during his Junior year, and he did not return to the University. He commenced the study of medicine immediately, and entered the College of Physicians and Surgeons in New York City. In the spring of 1846 he sailed for Europe. He took a six months' course of lectures under Ricord and Trousseau, in Paris; and then went to Madrid and studied under Saavedra. Here he graduated in 1849. After this thorough preparation, he practiced in Havanna, Cuba, until 1851. He then removed to Matamoras, Mexico, remaining there through the cholera epidemic of the summer of 1851. He went from Matamoras to Vera Cruz, where he was commissioned Division Surgeon of Cavalry. He marched with the army to the city of Mexico, and remained there until the abdication of Santa Anna, in August, 1855. During the next three years he was engaged in private practice in the City of Mexico; but, owing to the entire overthrow of the Church party—the result of the revolution—he left the country in 1858. He returned to Monroe in the same year, where he remained the rest of his days, leaving only for a term of service in the Civil War. In February, 1863, he was commissioned Surgeon of the 18th Michigan Volunteer Infantry. He was soon after ordered to establish and take charge of the Post Hospital at Nashville, Tenn., and remained in the service until mustered out in June, 1864.

Dr. Southworth was a member of the Masonic Fraternity, a Royal Arch Mason, and High Priest of River Raisin Chapter No. 22. He was a permanent member of the Michigan State Medical Association, also of the American Medical Association; and was President of the Southern Michigan Medical Society.

He was always opposed to the State's control over medical education. In his political views he was a Democrat, but never took an active part. Dr. Southworth's study under the ablest European physicians, his wide practice, and extensive experience, enabled him to enjoy in his later years a lucrative business. His death was the result of an injury which happened on the 26th day of February last; never having recovered, the disease was pronounced to be "valvular disease of the heart, arising from injury."

Dr. Southworth leaves a family of a wife and five children, two sons and three daughters. The older son is now in his Junior year in the Michigan College of Medicine, Detroit, Michigan.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY DURING THE WEEK ENDING NOVEMBER 8, 1884.

Craig, Thomas C., Passed Assistant Surgeon, to the "Alliance," for temporary duty, Nov. 1, 1884.

Swan, Robert, Passed Assistant Surgeon, detached from the Naval Hospital, Norfolk, Va., and placed on sick leave, November 3, 1884.

Wieber, F. W. F., Appointed Assistant Surgeon, Nov. 3, 1884.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM NOVEMBER 1, 1884, TO NOVEMBER 7, 1884.

Spencer, W. C., Major and Surgeon, ordered to Fort Trumbull, Conn., for duty as Post Surgeon, relieving Assistant Surgeon Wm. J. Wilson, U. S. A., who will report at Department Headquarters and await further orders. (S. O. 227, Department of the East, Nov. 5, 1884.)

Town, F. L., Major and Surgeon, assigned to temporary duty as Post Surgeon, Ft. Clark, Texas. (S. O. 145, Department of Texas, Oct. 27, 1884.)

Bentley, Edwin, Major and Surgeon, to be relieved from duty at Ft. Clark, Texas. (S. O. 145, Department of Texas, October 27, 1884.)

Corhisier, W. H., Captain and Assistant Surgeon, ordered to Ft. Grant, A. T., for duty as Post Surgeon. (S. O. 102, Department of Arizona, Oct. 30, 1884.)

Hopkins, Wm. E., First Lieutenant and Assistant Surgeon, ordered to Ft. Lowell, A. T., for duty as Post Surgeon. (S. O. 102, Department of Arizona, Oct. 30, 1884.)

Egan, Peter R., First Lieutenant and Assistant Surgeon, relieved from duty at Ft. Lowell, A. T., and ordered to Ft. Bowie, A. T., for duty as Post Surgeon. (S. O. 102, Department of Arizona, Oct. 30, 1884.)

THE

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EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. III. CHICAGO, NOVEMBER 22, 1884. NO. 21.

ORIGINAL ARTICLES.

PRACTICAL REMARKS ON THE TREATMENT OF THE MORE GRAVE AND MALIGNANT FORMS OF SCARLATINA.

BY BEDFORD BROWN, M.D., ALEXANDRIA, VIRGINIA.

Read in the Section of Diseases of Children of American Medical Association, May, 1884.

Whether the type of malignancy in scarlatina is imparted by the intensity of the infectious poison, by excess in quantity, or because of the extreme susceptibility of the system to its peculiar action, are questions which remain yet unsolved. But that there are certain prominent and important morbid elements or conditions entering into combination, in more or less degree, which give character to the type in all cases having a malignant tendency, there can be no doubt.

Preliminary to the consideration of the treatment of this form of disease, it is proper and necessary that these various morbid factors which unite for the development of the type of malignancy should be carefully investigated and analysed, with a view of ascertaining and comprehending their full meaning and bearing on the progress of the case, and as a guide for treatment.

During a personal observation of scarlatina extending over a period of more than thirty years, no case presenting malignant tendencies or characteristics has ever presented itself without the following peculiar features, viz.: a very high grade of corporeal temperature; excessive frequency of cardiac action, as manifested by the pulse rate; great debility of the heart, as indicated by the impulse of the organ and the feebleness of the pulse; excessive vital prostration of the muscular and nervous systems; suspension in great part of cutaneous action; a notably defective action of the renal organs, as indicated by the very scanty and albuminous urine, showing from a very early stage of these cases the presence of either functional or organic disease of these important depurative organs.

Frequent, and often intense, vomiting, manifesting the very serious impression made by the infectious poison on the great ganglionic system of nerves, and the functions of organic life. We also observe in these cases usually a partial or entire suspension of the functions of digestion or assimilation.

Another, and one of the most characteristic, of these morbid elements is the lymph-adenitis, which forms so often a conspicuous part in the history of the severe forms of scarlatina.

While these simple facts do not explain the peculiar nature of the infection, whether it is germinal or chemical in character, nor its action in disturbing the vital operations of the economy, they are nevertheless facts always associated with the development and progress of all severe or malignant cases, and claim our attention individually as objects of treatment in the most earnest degree.

From time to time various methods or systems of treatment for this affection have been introduced, and practiced by our profession. Very recently the antiseptic method has been proposed to be used exclusively as an all-sufficient antidote to the action of scarlatinous infection.

Others regard the pure and simple antipyretic plan in which cold constitutes the chief element as superior to all others. The sedative plan, composed of those agents as digitalis, aconite, and veratrum, which reduce cardiac action, and slow the pulse, has many and able advocates. Then there is the eliminative method which I think has not been duly appreciated; by which the portals of the skin and kidneys are opened and these organs are at once made the sewers of the system for the removal of the pent-up poisonous material which has accumulated from the toxic state of the blood and disintegration of tissue, and which is dangerous to life.

Can the Type of Grave or Malignant Cases of Scarlatina be Modified by the Action of Therapeutic Agents?—In my treatment of the severe forms of this disease for the last twelve years, I have acted upon the principle that if the features peculiar to this disease could be modified by treatment, the type of disease could also be modified to a certain extent and the case be converted from a dangerous to a benign form.

A very considerable experience during this period has only tended to confirm this opinion.

I am convinced that many cases of so-called malignant scarlet fever are lost because the disease is regarded as incurable.

Treatment of the more Violent Forms of Scarlatinous Lymph-adenitis.—One of the most frequent forms of the more severe and malignant types of scarlatina met with, is that which is accompanied with very

violent and extensive adenitis of the cervical glands and cellulitis. In these cases the fauces and tonsils are usually extensively involved. The infiltration and swelling of the neighboring cellular structures are usually so great as to impede the function of deglutition, and the muscular movements of the neck.

The temperature always rises to 106° or 107°. The pulse is characterized by great feebleness and frequency, often reaching the rate of two hundred per minute.

The functions of digestion and assimilation are for the time being partially paralyzed. All the indications point to the fact that the blood-making powers are seriously impaired, and the vital condition of the blood is greatly deteriorated.

These cases are exceedingly alarming in character, and if the morbid processes are permitted to proceed unmodified, usually terminate fatally. Can anything be done to modify the type of this class of cases, and avert the tendency to death?

If we reflect for a moment on the two important facts that an over-excited heart is pumping poisoned blood into the inflamed and enormously infiltrated structures of the throat and neck, at the rate of from 160 to 200 pulsations per minute, thereby constantly aggravating the local lesions, while the organ itself is being rapidly exhausted, and that the high temperature indicates a degree of combustion in the vital organism which will inevitably destroy life if not arrested, we are enabled to appreciate the necessity of reducing the action of the heart and the temperature to degrees safe to life. In accomplishing this object two of the leading factors, high temperature and a frequent pulse, in the process of malignancy, are removed, and if the vital condition of the blood can subsequently be maintained at a standard compatible with life, the chances for recovery will be greatly improved. In my experience, to temporize in these cases is to endanger the life of the patient. Success can only result from prompt and energetic treatment. The high temperature and frequent pulse must be reduced speedily to a point near the normal standard. I have seen the accomplishment of this object in repeated instances convert cases with decided malignant features into the benign type. There are two safe and efficient means always at hand to control high temperature. One is the warm bath, either by the immersion of the body in water at the temperature of 80°, or the wet pack at the same degree, repeated every three or four hours until copious perspiration follows:

The patient is permitted to repose in the wet sheet, enveloped in blankets, the entire body being for hours subjected to free perspiration, and of course undergoing the combined antipyretic and eliminative processes. In connection with those measures the sedative treatment is also practiced. For this purpose I have found the following formula well adapted.

℞ Infus. digitalis.....f℥ij.
Tinct. aconit. Rad.....gttxvi.
Spts ammon. arom.....f℥iij.
Spts. nit. eth.....f℥i.
℔ S. A teaspoonful in water every 2 hours to a child of 5 years.

This method of treatment in my experience rarely fails to induce a marked change for the better in the temperature and pulse.

In this manner we accomplish two leading objects simultaneously. My rule has been, in those cases attended with excessive inflammation and swelling of the structures of the throat and neck, a very high grade of temperature, and frequent pulse, to reduce the pulse rate and temperature by the combined agency of digitalis and aconite, as rapidly and steadily as is consistent with safety, down to a standard perfectly compatible with life. This peculiar combination I regard as particularly effective in this class of cases, and whatever dangerous or ill effect the one may exert is counteracted by the other.

In this way many cases of the severe form of what is termed the anginose variety with decided malignant tendencies may be robbed in great measure of malignancy of type, and converted into more simple and manageable forms. With a slow, strong pulse, and a moderately low temperature, the chances for life become at once greatly improved. The combined influence of the sedative and eliminative treatment over the extensive and dangerous swelling of the structures of the throat, usually diminishes the effusion and inflammation permanently, and in proportion to the abatement of fever. Long and continued experience in the use of eliminative measures through the skin and kidneys, principally the former, only tends to increase my high estimation of the great value of this means of treatment in all the more severe forms of scarlatina.

In all grave forms of the affection the skin is particularly dry, and devoid of perspiration. My custom has been, in all of this class of cases, to maintain a free and continuous action of the skin by means of the tepid bath and the wet pack, throughout the course of the attack.

For the purpose of illustrating what may be accomplished in the conversion of a very grave and malignant type of this disease into a very simple and benign form, I will cite the following case: A little boy of six years, in very robust health, in 24 hours after the first indications of scarlatina, became alarmingly ill with malignant symptoms. The eruption was imperfect in development; the pulse so frequent that it could not be estimated. There was great stupor. The temperature ranged at about 106°; the general prostration was correspondingly great. The child was first given a general bath at 80°, then enveloped in a wet sheet at the same temperature, and over this a dry blanket; then put to bed and permitted to luxuriate in a free and delightful perspiration for many hours. When the temperature increased, the same process was resumed. Then he was given a drachm of infusion of digitalis, one drop of the tincture of aconite root and ten drops of sweet spirits of nitre, every two hours, until the pulse and temperature were reduced to near the normal standard. Then the consciousness and vital powers of the little patient returned, and the type of the case in another 24 hours was changed from a very dangerous to a very simple one.

Treatment of the True Adynamic Type of Scar-

latina.—We occasionally meet with a class of cases presenting from the incipiency symptoms of adynamia. The eruption is always of a dark or mahogany color, and not abundant; the pulse is exceedingly frequent and feeble. The urine is dark, very scanty, and often albuminous. There is excessive stupor and prostration of the vital powers, the tongue a dark red and very dry. We all appreciate the gravity of these cases. The treatment which I have found most efficient in this type of disease, consists of the wet pack saturated in water at 80°, with a considerable proportion of alcohol combined, used sufficiently often to maintain a moderate perspiration. The following formula I have found the most useful of all of which I have made trial:

℞ Sodæ sulph.-carbolat.....ʒiss.
Sodæ hyposulphite.....ʒi.
Aqua.....ʒiss.
Infus. digitalis.....ʒiss.
Tinct. nux vom.....xii gtts.

Of this 2 teaspoonfuls are to be given to a child of 5 years every two hours. Alternately with this a teaspoonful of brandy and elix. of calisaya are to be administered.

In these cases the temperature rarely reaches a very high grade. The temperature and circulation are both unequally distributed. The extremities are usually cool and livid, the body hot. The action of the heart is excessively feeble and frequent, often reaching a rate of 200 per minute in very young children. The poisoned condition of the blood renders the dangers of thrombosis of the heart, lungs and brain imminent. This condition is particularly encouraged because of the inability of the heart to maintain an equable circulation. Hence in these cases we need especially a remedy which will both slow and strengthen the action of the organ.

The Treatment of the Malignant Type Due to Early Renal Complications.—In a certain proportion of cases the malignancy of type seems to be due to early renal complications. We observe in these cases the early development of malignant features very similar to those manifested in cases of serious nephritis from more simple causes. Thus there is always tendency to coma. The urine is very scanty, high colored, acid in reaction, and albuminous. The temperature is high, and the pulse rate very frequent. There may be but moderate adenitis, yet the case presents all the indications of gravity and danger.

In all cases of importance I believe it to be our duty to examine the state of the urine throughout the course daily.

Doubtless many cases have assumed the malignant type and ended fatally, solely because of the development of nephritis. In the treatment of these cases all of our appliances, consisting of the warm bath, the wet pack, and if necessary, the hot air bath, for the purpose of inducing copious elimination through the skin should be brought to bear on the patient frequently.

Prolonged observation of scarlatina convinces me that our attention is directed usually to renal complication at too late a period of the case, and that treatment is often delayed too long. In cases of nephritic complication with high grade of fever and frequent pulse, I have found a combination of alkaline diuretics with sedatives of infinite service. The alkaline diuretics can not only be given freely in these cases without harm, but with benefit. In my experience it is best to maintain the urine in a perfectly neutral and bland state, so that its acids cannot act as irritants and thereby aggravate the existing inflammation. I have found the following formula a valuable one under these circumstances:

℞ Liq. potass. citratis.....fʒiss.
Potass. bicarb.....ʒij.
Spts. nit. ether.....ʒiij.
Tinct. aconit. Rad.....xiigtt.
Infus. digitalis.....fʒi.
♏ A dessertspoonful every 2 or 3 hours to a child of 5 years.

This combination of therapeutic agents usually exerts a most favorable influence over the engorged and inflamed kidneys. Their functions are always improved and generally restored. At the same time the action of the heart is slowed and strengthened; the abnormal temperature is reduced to a point of safety and the nervous centers relieved.

In connection with this method the patient is fed liberally on skimmed milk.

I do not remember ever to have seen a case of organic renal disease or dropsy following scarlatina in an exclusively nursing infant. Whether this is due to the exclusive milk diet, to the exclusion of animal food, or to the better care or protection from cold is not known.

The Treatment of Protracted Adenitis, followed by Abscesses and Symptoms of Pyæmia.—In the severe anginose form of the disease, protracted adenitis, followed by a long line of abscesses in different portions of the system and symptoms of pyæmia, occasionally occurs. The fever is usually hectic in character. The temperature rises and remits at certain periods of the day, followed occasionally, but not always, by exhausting perspirations. The tongue is usually red and dry. There is complete anorexia; symptoms of adynamia are always present. The process of emaciation is progressive. These morbid processes may continue in operation for many weeks, and either end in death or restoration.

I have found in this particular affection no combination of remedies so effective as the tinct. of the chloride of iron, arsenic and digitalis. I usually give to a child of five years, five drops of the iron, one-third of a drop of Fowler's solution of arsenic and three drops of the tinct. of digitalis every four hours. This method of therapeusis should be maintained until the pyæmic tendency has been arrested. In this place I regard the arsenic as an important ingredient.

When the tendency to exhausting perspiration is decided, I usually combine the tinct. of belladonna.

Treatment of the Convulsions of Malignant Scarlatina.—A history of the treatment of scarlatina would be very incomplete without allusion to the subject of convulsions. Usually in these cases renal complica-

tions are present, and must receive a share of our treatment. The pulse in these cases is usually very frequent and the temperature high. The entire voluntary, reflex, and ganglionic nervous centres are all profoundly affected by the infectious poison. To relieve the circulation of uræmic poisoning, which is generally present, and to prevent that irreparable damage to the brain which results from the capillary thrombosis and extravasation of blood that may arise from the violent and unequal action of the heart, our remedial agents should be addressed to the eliminative organs, the reflex nervous system, and the general circulation. Elimination through the skin and kidneys, as heretofore advised, should be assiduously practised. Chloral hydrate, to control the over-excited reflex centres, and veratrum viride combined, have been more efficient in my experience as a means of reducing cardiac action and regulating the unbalanced circulation than any other agents. Five grains of the chloral and one or two drops of the tinct. veratrum act well after the functions of the skin have been restored. These remedies should be repeated every two hours to a child of five or six years until the object has been attained. In dangerous cases of this kind I regard the use of the veratrum as an important addition to the treatment. In my own hands, when combined with chloral, it has been more prompt, energetic, and decided in repressing the convulsive tendency than any other therapeutic agent.

Treatment of Scarlatinous Pharyngitis.—After a trial of the various local remedies devised by myself and recommended by others, I have reached the conclusion that a combination of astringent and antiseptic agents, composed of bromo-chloralum ℥i, the antiseptic vegetable compound known as listerine ℥ij, pulverized alum ℥ij, carbolic acid xgtt, diluted with rose water ℥iv, either used by means of gargling, the atomizer, or brush to the inflamed surface, constitutes the most valuable of all the local applications. I feel sure that the absorption of the antiseptic properties through the mucous surface is in such quantities as to exert decided effect. Two or three drops of carbolic acid, when applied to the cervix of the uterus, will be tasted by the patient almost instantaneously.

I have faith, also, in the value of antiseptic agents applied to the cutaneous surface. When carbolic acid, salicylic acid and ointment of rose water in combination are applied to the skin, they act not only as an emollient, allaying inflammation and irritation, but the antiseptic agents being spread over a vast extent of surface, are largely absorbed, and exert their peculiar influence in correcting the septic processes going on within the system, thus saving the digestive organs the ill effects of their influence.

In the selection of nourishment we should be influenced both by the condition of the digestive organs and the renal functions. In cases of seriously impaired digestion, irritable stomach, scanty, albuminous and acid urine, the best method of administering nourishment, in my experience, is in the form of skimmed milk, containing a small amount of bicarbonate of soda in solution, and combined with one-third lithia water. This may be continued so long as these symptoms exist.

In all serious cases preference is given to the alkaline lithiated milk as a constant diet. The milk is evidently better digested and assimilated than any other form of nourishment. It is in this form exceedingly bland and unirritating to the renal passages, and affords relief to the engorged and inflamed kidneys. It is given abundantly, and almost exclusively. This form of diet not only serves a good purpose during the acute stages of the disease, but acts well as a prevention of renal sequelæ.

THE RELATION OF BACTERIA TO INFECTIOUS DISEASES.

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No subject in medicine either in relation to its theory or practice holds at present in any considerable degree an interest equal to that of the rôle of micro-organisms to disease. Although in a strict sense not new, it is only within a very recent period that systematic study and scientific research have invested the theme with an interest by any means general, or elevated it from the domain of speculative philosophy and pseudo-science. Recent as have been the investigations, it is marvellous to find the flood of literature already contributed.

Notwithstanding the interest and importance of the subject, this contribution might not have been added to the list had I not listened to a series of six semi-popular lectures delivered in Boston within the year, in which course the entire subject was carefully reviewed and in a most labored argument it was deduced that the fundamental basis is wanting upon which the entire system of the germ-theory of disease is founded; that there is no real proof that fermentation even, is caused by the development of a low order of vegetable organisms. This sweeping assertion was based upon the statement that the various classes of micro-organisms in any of the series of experiments had never been separated from the "ambient, organic, living matter" which must be considered to have a low degree of inherent vitality, and that, as a consequence, it can not be determined what, in the subsequent changes, is due to the germ development and what the rôle of the ambient living matter may be. This, in the mind of the objector, would pertain as distinctly and definitely to the so-called pure cultures, or many removes from the primary infection, where, it is obvious, that only an infinitesimal quantity of the original material could remain, since the ambient living matter might have been reproduced indefinitely as well as the mingled germs. With an emphatic pointing of the argument it was declared "that not until it had been demonstrated, what would ensue, after a well-washed micrococcus or bacillus had been isolated upon the point of

a needle and then introduced into a sterilized, nutrient solution would the real conditions of the problem be fulfilled."

Anything may be doubted. There are many who would not accept the demonstration of any historic fact; and even mathematical formulation, or axiomatic truth would by some be questioned. However, it is well to have even the old, established creeds and codes occasionally reëxamined and reviewed by the keen criticisms of opponents, for "Science is only pure and simple truth," and never suffers by test.

Negative proof may assume a value not less than positive demonstration, and yet, when we come to accept the gauntlet thus thrown down, we shall find the defenders of the germ-theory are not reduced even to this exigency. Let us separate the problem as formulated by Dr. Longstreth into its component parts, the ambient, living matter and the germ. We grant that the former has, under certain conditions, an inherent vital power, which is indeed no new discovery, but has been accepted by many of the best investigators. It has been known under different names, but, perhaps, most widely under the excellent definition given by Dr. Lionel Beale as bioplasm. In the differentiation of the organic material which serves as food, there must evidently be somewhere along the series a point where the protoplasmic masses are imbued with a certain vital power. Let us admit that this hypothetical point be accepted as bioplastic, that the material in a considerable share is particulate, and that it has its highest expression of effect when in the greatest degree "ambient." I think we may safely assume that in the blood of a healthy animal we should find this ambient living matter in its highest potency. In order to determine the bioplastic powers of the liquid, ambient, or protoplasmic matter, I decided upon a series of careful laboratory studies, in the execution of which I am greatly indebted to my assistant, Dr. Samuel N. Nelson. The blood of healthy animals, sheep and oxen, was taken with careful precaution at the abattoir in flasks, sterilized by heat and immediately protected by carbolized gauze. As soon as the blood clot had separated by standing, sterilized glass bulbs were filled and sealed in the flame, and others charged with sterilized, culture fluids were inoculated in varying proportions, following the method which I have adopted in the study of germicides and micro-organisms. These were kept for different periods of time subject to the same conditions as in the growth and testing of various bacterial organisms. Careful microscopic examinations were made at different data with a Zeiss fourteenth objective, giving an amplification of about a thousand diameters. In only one of more than twenty bulbs did any change take place, and this upon its first opening, the third day, remained sterilized. Albumen from the egg yet warm from the nest, milk aseptically milked and put up at once, and the aqueous humor were also tested. In a series of forty-five bulbs, only two contained bacteria-termo and micrococci, which evidently were accidentally introduced, since one was a sterilized bulb inoculated with serum, and the other was fertilized when opened a second time the seventeenth day, which was sterile upon the ninth day when first examined. In the rest of the series no changes ensued, and no micro-organisms developed. See table.

RESULTS OF TESTS WITH "AMBIENT ORGANIC MATTER."

SUBSTANCES.	TOTAL.	NO.	DAYS.	RESULTS (F. 3.)
Serum from sheep's blood.	7..	4	6	Some protoplasmic masses as in fresh serum
		1	9	ditto.
		1	11	ditto.
		1	16	ditto.
Bulbs inoculated with sheep's serum.	18..	5	6	Five unchanged, one contained micrococci and bacteria termo active.
		2	9	Unchanged protoplasmic masses.
		1	11	ditto.
		1	16	ditto.
		8	17	ditto. Also one opened at 9th day contain micrococci and bacteria termo active.
		1	8	Same protoplasmic masses this one inoculated after nine days.
Serum from ox's blood.	2	2	6	ditto.
Bulbs inoculated with ox's serum.	4	2	6	ditto.
		2	17	
Aqueous humor sheep's eye.	2	2	6	ditto.
Inoc. aqueous humor sheep's eye.	3	3	6	ditto.
Inoc. milk.	4	3	4	ditto with same.
		1	5	ditto "
Albumen of egg.	2	2	5	ditto.
Inoc. ditto.	3	3	5	ditto.
Total,.....	45			

It seems from the above experiments a clear deduction that the ambient living matter, upon the germinal qualities of which so much emphasis has been placed, possesses no power of reproduction, and that, at the most, it is an organic nutrient fluid serving the highest purpose for bioplastic uses, but having in itself absolutely no independent, inherent power of growth,

This, indeed, is what has been assumed *a priori* to be true by most investigators and, so far as I know, had never before been questioned. Blood serum has been selected by many of the most distinguished observers as the best possible culture fluid for the growth of micro-organisms, never suspecting that in the fluid itself there could be a source of error.

Numerous experiments familiar to all students of the subject have conclusively shown that when blood has been taken under proper precautions from a healthy animal, it undergoes no decomposition and is absolutely free from all bacterial organisms. The only objection to blood as a culture medium has been found in the presence of the corpuscles, which, after a time, may break up and present a granular debris, thus rendering the recognition of micrococci more difficult.

This is not the occasion to enter upon the character or the classification of micro-organisms. At the present, no one denies their vegetable nature. That they are organic and have an inherent, independent vitality is proven by their distinctive shape elements, spontaneous, independent movement and powers of reproduction. The rôle or relationship of these

minute organisms to disease is a question the importance of which cannot be over-estimated, and, if the relationship of cause and effect in the class of zymotic diseases be demonstrated, medicine will at last have for its foundation a scientific basis.

Although we may accept the formulation that, "Science is pure and simple truth," no question probably ever presented, the solution of which is involved in greater difficulty. It is very doubtful if the time has arrived when generalization may be made or formulation adopted.

In the rapidly accumulating evidence from many independent investigators, however, it is not too much to believe that such a period may belong to the early future. To demonstrate the causal relationship of germs to disease, the micro-organism in question must be isolated, or separated from any other material which could be called in question, be it "liquid ambient matter," organic, or chemical poison having relationship to the disease. This organism thus separated must, upon inoculation into the tissues of a healthy, living animal of the same species, cause a reproduction of the disease under consideration, in other words, the micro-organism must "breed true."

The objection already referred to was that, to carry out the requirements here given, "the germ must be isolated, well washed, and then introduced into a sterilized, culture fluid."

To accomplish a purpose, believed to be equally satisfactory, the process of so-called pure culture has been devised. This is to infect a sterilized bulb or solid culture with a minute quantity of the original virus, and upon development to inoculate from this a second, and so on to the end of a given series. Pasteur was among the first to devise this method, and show the extreme subdivision of the original material thus obtained. I quote an illustration of this from the experiments of Dr. Sternberg: "My culture-tubes contain about a fluiddrachm of sterilized bouillon. The amount of infective material introduced into culture No. 1, as seed, was considerably less than a minim; but for convenience I will suppose that one minim is used each time to start a new culture; that is, the original material is diluted 60 times in the first culture, 3,600 times in the second, 216,000 times in the third, and in the eighth culture it will be present in the proportion of 1 part in 1,679,611,600,000,000. Yet a few minims of this eighth culture possesses all the virulence of the first."

Let us grant that a certain quantity of the so-called sepsin, a chemical poison of any conceivable virulence, accompanied the primary infection, and that it was possible for it to be produced by chemical changes set up in the nutrient fluid *pari passu* with the growth of the organism; then we would find that upon subcutaneous injection into an animal it would act promptly and bear an effect in direct relation to the quantity thus used, either killing the animal, or being eliminated and recovery ensue. Contrast the effect of a septic inoculation. Hours after the injection the animal appears in its usual health, and slowly sickens. If death ensues, it is never until sufficient time has elapsed to allow the reproduction and growth of the micro-organisms; and, upon examination, the tissues and fluids are found to contain, in active development, immense numbers of organisms, in morphological characteristics identical with those of the original infection. These experiments may and have been repeated in long series with unvarying result. In still further evidence that the morbific poison is particulate and dependent upon the micro-organisms present, the experiment of filtration has been repeatedly made where the most virulent of septic, poisonous material was thus treated, and the filtrate injected into a healthy animal with negative results. Klebs first showed that filtration caused anthrax blood to lose its infectious properties, although the filtrate acted as a local poison. Toussaint repeated these experiments with similar results, and Eberth's experience with the filtrate of diphtheritic poison gave at the points of injection only local inflammations, without any marked general symptoms.

In anthrax, where the rôle of the bacilli has been very carefully demonstrated, seemingly beyond the denial of the most captious critic, only recently did I hear it publicly and seriously urged that death was not caused by the bacilli of anthrax, but was mechanical, and, as it were, accidental, since the extraordinary size of the bacilli caused a plugging of the capillary circulation in the lung, and death ensued as by strangulation.

How such puerile objections could for a moment be seriously advocated, or accepted, acknowledging but ignoring the *causa causans* of disease, is beyond comprehension. However, by such queries, we are led to consider, if disease and death are the result of the growth and development of such organisms in the living body, in what way is such result brought about? Is it by occluding the blood-vessels, causing stasis, arrest of circulation, and, as a result, local death of tissue; *i. e.*, mechanical? Does it devitalize the tissues by abstraction of nutriment for its own uses, deoxydizing the blood? Does it also generate in its growing a morbific virus which is inimical to life; or does it, by its abstraction of certain constituents necessary to its development, cause chemical changes in the construction of highly organized, vital elements, as the yeast plant in its growth in saccharine solutions produces alcohol?

There can be little doubt but that in each of these several ways, sometimes separately, more often combined, does injury result by the development of these minute organisms. Did it not carry us beyond our present limits we should discuss the individualistic resistance to the invasion and growth of micro-organisms within the body of the living animal. This must, at least in a large share, be ascribed to a property in the living organism, a vitality which renders the development of the bacterial growths abortive, or imperfect. Reduce this standard, lower it to a hypothetical given point, and the complex organism becomes an easy prey to the omnipresent, unseen, yet potential forces which are ever in waiting to take it to pieces and refit it for new and perhaps higher uses.

The vital equations in the life processes are among the most complex and difficult of all in the study of the animal economy. They meet us at every turn

when we investigate any of the pathological changes. The reason why, in some animals, micro-organisms cannot be made to grow at all, while in others, seemingly equally healthy, they fructify and speedily cause death, must be sought in the peculiar vital or resisting power of the individual or the species. This has evidently been overlooked or underestimated by many in their deductions upon this subject. The cell changes which follow localized irritation furnish an excellent illustration. Lymphoid, epithelioid cells, or granulation tissue, is proliferated in protection and, in the development series, connective tissue ensues and repair is completed. Arrest the process at its earlier stages and degenerative changes take place, and it is in this way that conditions are produced favorable to germ development. Thus, simple depreciation of vital force may be the first term of a series ending in death, to which, as it were, are added only accidental factors.

There are many questions relating to the subject upon which we are at present and perhaps must ever remain ignorant. How do certain forms of infectious disease grant immunity from subsequent attack? Answers only of a purely speculative character have as yet been suggested. In what way, upon recovery from attack, do the morbific, germinal materials disappear? Here again all positive demonstration is wanting. Sternberg suggests that the disappearance of the bacteria from the circulation may be effected by the superior vitality of the white corpuscles which in their amœboid motions may surround and assimilate the captured bacteria.

What are harmless and what are pathogenic bacteria? May the one develop from the other; are they modified by the media in which they grow, may a micrococcus develop into a bacillus, a bacillus into a spirillum? Do each of the infectious diseases have its *sui generis* germ? These again are questions of intense interest engaging the attention of many scientists at the present, but upon which little can be declared as settled. Reviewing these phases of the subject, beset with so many difficulties, it is encouraging to be able to differentiate somewhat clearly, however, the known from the unknown, and to be certain of the establishment of facts of fundamental value and importance.

In this review of the more recent demonstrations of the germ-theory, we must limit ourselves to a small number of diseases. The study of anthrax is the most instructive because the most complete and demonstrative. Pasteur followed a series of one hundred cultures to find the last as virulent as the first. Koch continued the experiments in septicæmia with mice to over fifty repetitions, not only to demonstrate the breeding true, but also that as a rule one-tenth of a drop was an ample quantity to induce a fatal result. Contrary to that found in anthrax, the bacilli here are extremely small.

The rôle of the bacillus tuberculosis has been so satisfactorily established by Koch that a large number of our best observers accept the conclusion of cause and effect as demonstrated. No one subdivision of the question probably holds an interest and importance equal to this at present. Dr. Fergerson publishes in the *Medical Record*, July, 1883, a compilation, as a statistical table, in which he states that in 2,509 cases reported, 2,417 cases contained bacilli. The most noteworthy fact in reference to the cultivation experiments of the bacillus tuberculosis is their slow growth. Koch cultivated them at a temperature of one hundred and four. It was not until the tenth day that active development supervened. Five successive cultures occupied fifty-four days. With this culture four guinea-pigs were inoculated, and upon the thirty-fifth day all were found undergoing extensive tuberculosis. A series of injections into the eye gave somewhat similar results. One inoculated with pure serum, "liquid ambient matter," remained healthy. Three inoculated from a series of cultures which had been carried on for one hundred and thirty-two days gave reproduction of typical tuberculosis. Similar experiments with greater or less care have been repeated in various countries giving in large share confirmatory evidence. In the discussion of the subject, unfortunately the partisans of their various views have often lost a wise judicial discrimination, and at such hands the advancement of science suffers.

Dr. Formad, of Philadelphia, has imparted much knowledge in his publications upon the subject, but he has failed in his attempts to reproduce from his so-called tubercle of irritation true tuberculosis.

Evidently the first point to define is, what is tubercle? If only consisting of lymphoid, embryonal, or epithelial cell-growth, more commonly known to us as a low order in vitality of granulation tissue, then we must admit with him that any irritant may produce tubercle, and the more finely divided and widely disseminated the irritant, the more finely miliary and widely diffused the resultant tubercle.

If it can be shown that such tuberculous material, devoid of germ infection, will reproduce upon innoculation into healthy animals, resulting in disseminated tuberculosis, and so on in a given series, then the objections and negative evidence will stand upon the same basis as the positive, and we will be ready to admit the exclusive production of tubercle as not due to bacillary infection. This we had expected would be shown by Dr. Formad, since in his second report which he has published upon the subject he states: "In my own experiments, I found that tubercle produced by inoculation with innocuous material under antiseptic precautions was likewise capable of producing tubercle when inoculated into other animals, having thus the same action as the innocuous material primarily used." Dr. Formad believes the rôle of the bacillus in tuberculosis is simply that of an irritant.

Malassez and Vignal have recently published a most interesting series of studies, experiments, and observations upon tuberculosis produced by micrococci in zoöglea masses in which no bacilli were found. The following are in brief their conclusions:

1. There exist tuberculous lesions presenting no bacilli, and which inoculated give place to tuberculosis equally without bacilli, and yet similar in appearance to bacillary tuberculosis. Similar results were obtained with their culture products. If the presence of the bacillus suffices, according to Koch, to characterize the tuberculous nature of a lesion, the

reciprocal is not true, namely: their absence does not suffice to deny the tuberculous nature of a lesion.

2. In tuberculosis from inoculation without bacilli there are tubercles which are characterized by the presence of zoöglea masses of micrococci which play, in the tissues which they infect, the rôle of foreign irritating bodies and determine in them thus the so-called tuberculous lesions.

3. There are also other tubercles of inoculation, not bacillary, in which we distinguish no well-defined zoöglea masses. They seem due to the presence of micrococci of the same kind as those of the zoöglea masses, but which, instead of being grouped in masses, are strewn through the tissue of granulation and it may be just this dissemination, which, in absence of the special coloring reagent, prevents distinguishing them sufficiently. That which proves this is, that they may, by inoculation, produce anew zoöglei tubercles. It may be possible that these are some in which that form of parasite may have indeed disappeared.

4. These same tubercles, not bacillary, with or without distinct zoöglea, may produce after a greater or less number of generations of inoculations, bacillary tubercles, as if the zoöglea, the diffused micrococci, and the bacilli were simply different forms, or different stages of development of one and the same micro-organism. Yet this transformation from micrococci into bacilli, not having yet been directly established, we have no right to affirm that bacillary tubercle and zoöglea tubercle are of the same nature, although it may be perhaps the most probable hypothesis.

5. Although our zoöglea masses and our micrococci do not closely resemble the described parasites previously mentioned by Klebs, Aufrecht and Toussaint, they may, however, be in some way related to them; but the facts observed do not permit us to determine the question.

There is much difference of opinion upon the communicability of tuberculosis.

Dr. Formad denies that any proof has been produced showing communicability.

Dr. Dreshfield gives the following instance: "In a small town in Germany where in the period of nine years only five children had died of tubercular meningitis, there happened in the course of nine months eleven deaths from that disease in infants under six months, all these children had been assisted into the world by a midwife who was known to be phthisical and who died of phthisis and who was in the habit when attending a confinement to blow into the mouth of the child with the view of expanding the lungs. No mention is made of the number of confinements attended by this woman."

Dr. MacKenzie in the February number, 1884, of the Edinburgh *Medical Journal* details the result of examinations made in seventy cases of pulmonary and laryngeal disease. A little over one-half were well-marked cases of tuberculous disease and in all these the bacilli were found in the sputum and most abundant in the acute cases. The muco-pus taken from the larynx in laryngeal phthisis contained bacilli in abundance. In thirty-three cases bacilli were absent, of which twenty-two were undoubtedly non-tuberculous, and the remainder, although of doubtful character at the time of examination, were proven by their subsequent examination not to be of tuberculous origin.

Bacilli have been found in glanders, intermittent fever, leprosy, malignant œdema, syphilis, and cholera with more or less evidence that they are the producing cause. Dr. Salisbury in our own country was probably the first to declare that the cause of intermittent fever was a minute vegetable growth. His experiments were numerous and made with a care worthy of commendation, when we consider that he was a pioneer in the field. That they were inferential instead of demonstrative is true, but he collated a series of facts and array of evidence which renders his observations valuable and well worthy of honorable mention.

Klebs and Tommosi-Crudeli announced the discovery of the bacillus malaria in 1879. Their experiments were made in the vicinity of Rome and have been repeated with confirmatory results by a number of Italian and German observers.

Dr. Sternberg[1] in New Orleans, in 1880, instituted a series of experimental studies with only negative results. He gives a critical review of the subject at some length and arrives at the conclusion that demonstrative evidence of the *sui generis* micro-organism is yet wanting. He found in the swamp mud near New Orleans and in the gutters of that city bacilli which closely resembled the described organisms. While the proof is wanting that these actually cause intermittent fever, he closes the discussion as follows: "On the other hand there are many circumstances in favor of the hypothesis that the etiology of these fevers is connected, directly or indirectly, with the presence of these organisms or these germs in the air and water of malarial localities."

There can be no doubt of the importance of a better knowledge of soil pollution and in this connection I would call attention to the admirable original work done by Profs. Pumpelly and Smythe, incorporated in their report to the National Board of Health. I am informed that a large amount of original, experimental research by the same authors still awaits publication, because the appropriation therefor was withdrawn.

Last autumn, during the construction of a large sewer in Brookline, to convey the waters of Muddy Brook, used for a long time as an open sewer, the bottom of the excavation was eighteen feet below the the crossing roadway. The cut was through a stiff clay marl. In a specimen of this material taken from the very bottom, were found bacilli perhaps a trifle longer, but otherwise not unlike in their morphological characteristics to the bacillus tuberculosis. They were easily reproduced in sterilized bulbs, but no inoculation experiments were attempted. Last winter I examined a specimen of the clay taken from the bottom of a sewer excavation in Beacon St., Boston, in which I found abundance of active micrococci. The cut had extended through the filling into the

[1] Bacteria. Page 317.

solid clay substrata and was probably more than twenty feet below the surface.

Dr. Andrew Smart, of Edinburgh, published a description of micro-organisms, with drawings, found in the disease called Rinderpest, in 1865. This is claimed to be the first demonstration of bacteria in living tissues.

In glanders several independent observers (Struck, Loffler, Israel, and Bouchardt) have found a bacillus and cultivated it. When inoculated into the nasal cavity of animals (horse and rabbit), it has produced typical glanders. Hansen, of Norway, has made a most interesting series of studies upon leprosy. In the tubercles or nodules he finds a bacillus which he describes and figures. It is in appearance not unlike the bacillus tuberculosis, and Neisser has confirmed Hansen's demonstrations. The bacilli were successfully cultivated, but the inoculation experiments have given only negative results.

A simple review of the work done in the study of the relation of micro-organisms to typhoid fever would in itself make an interesting paper. When we remember the intestinal canal in health is the home of an infinite number of actively growing bacilli, we can at once appreciate one of the difficulties which meets the observer at the very outset. These, undoubtedly, infect the ulcers and necrosed tissues; but by a number of observers, notably Eberth,[1] bacilli have been found in the mucous membrane, lymphatic glands, and spleen. Koch is of the opinion that the bacillus of Eberth is the only one which holds to the disease a specific relation. It is a short, thick rod, and stains less deeply than the bacilli of putrefaction. The member of the bacillary family which seems to play a specialistic part in the causation of disease, latest discovered, has been reported by Dr. De Lærada, of South America, as the bacillus of beri-beri. His studies were carried on after the method of Pasteur, in the physiological laboratory of the National Museum at Rio Janeiro. Beri-beri is an obscure disease, introduced many years ago into Brazil from India, and in certain provinces is very fatal. Bacilli were found in the blood, but especially in the muscles and spinal medulla. These were isolated by cultures and inoculation experiments produced a reproduction of the disease in animals. From these again cultures were made and the series reproduced. It is believed the origin of the disease is found in certain conditions incident at times to the rice, and in the districts most subject to the disease rice is the principal article of food. Micro-organisms not unlike those of beri-beri were found on the rice, were cultivated, and injections of the culture were made, using guinea-pigs; death ocurred from thirteen to twenty days with paralysis, and bacilli were found in the spinal cord and muscles. The demonstration seems complete, but farther investigations are promised.

Dr. Sternberg's admirable report of the Havana Yellow Fever Commission must be briefly referred to. His studies of the blood were certainly made with the utmost care, and his photo-micrographs are of the greatest perfection and beauty. From the present better knowledge of the rôle of micro-organisms in disease, it is questionable if more satisfactory results might not have been obtained, if the lymphatic and glandular systems had been equally carefully studied. Although he demonstrated no micro-organism which could be considered as causal, there are a number of observers who claim to have found it. Dr. Freise, of Brazil, describes an organism which he thinks may remain indefinitely in the soil, and which he finds rapidly reproduced with fatal results in rabbits and guinea-pigs. His observations would, however, seem to require confirmation. The whole subject demands a most complete and painstaking examination.

Cholera holds the first place in popular interest at the present time, owing to its ravages in Europe, and the widespread fears that it may yet become far more general, and extend to America.

The medical profession have followed with an intense interest the investigations of the cholera commissioners in Egypt and India during the last year. Their reports must be considered by all as of great importance, and are contributions of especial scientific value. Few questions can be more complex, or investigated amid such an array of difficulties. The micro-organisms which in health infest the digestive tract are various, and in numbers utterly incomprehensible. Their histories and the modifications which they undergo, subject to a great variety of diseases, are but little known. Much work by reliable observers is requisite as a preliminary to the satisfactory study of an epidemic of cholera. I would urge that the attention of all practitioners possessing the requisite knowledge, should be given to a careful study of such conditions, and thereby contribute to the solution of many questions yet unsolved.

Another difficulty, which does not pertain to the study of many pathogenic germs, is the well-established fact that cholera does not infect the lower animals. Hence the very important evidence deduced from inoculation experiments with the organisms or their cultivations is here wanting. In the sixth cholera report written by Dr. Koch, it is stated that the bacilli which, in their earlier reports, the Commission were unable to determine as strictly limited to cholera, were now accepted by them as holding a specific relationship. The distinguishing characteristics given to the organisms are, briefly: "They are not quite straight, as are the other forms of bacilli, but are slightly curved, comma-like; this bending may be even so marked as to be almost semicircular. From these curved stems, S-shaped figures, more or less elongated, slightly undulating, linear forms may be developed in pure cultivations, of which the first two segments and the last correspond to the form of the bacilli as found in cholera, and which, continually increasing in number, remain attached to one another." Thus they closely resemble a spirrillum, and may ultimately be classed with it. The voluntary movements were very active. These bacilli were found in all the intestinal discharges, and in the contents of the intestinal canal at post-mortem examinations, but not in any other

[1] "Der Typhus-Bacillus und die intestinale Infection."

disease, and only in one instance in the various specimens of dirty water examined.

Dr. Koch, in discussing the relationship of these growths, states that the development of the supposed specific bacteria can only be favored by the cholera process, or that the bacillus is the cause of the disease, and that the disease is only induced when it has found its way into the intestine of man. If the first supposition is allowed, these bacilli are always present in health, which is stated as not the fact. Therefore he concludes that the growth of the bacteria cannot be due to the cholera process, and there is nothing left but the inference that it is itself the cause of the disease. Many other circumstances are emphasized as pointing to the same conclusion. They are limited to the organ which is the seat of the disease. They invade its tissues, which become markedly metamorphosed. In the earlier dejections of a cholera patient, so long as they are still feculent, the bacilli are few, but the subsequent watery, nearly odorless, characteristic dejections contain the bacilli in immense numbers, and coincidently all other bacteria disappear almost completely, so that in this stage of the disease an almost pure cultivation of the bacilli is obtained; conversely, the comma-like bacilli decrease and disappear completely during convalescence. This general relationship holds good, also, as observed from post-mortem examinations. There can be no doubt but the study of the present epidemic will contribute much to our knowledge.

The great majority of observers in India and elsewhere give it as their unqualified opinion that cholera is infectious, and may be transmitted not only from individual to individual, but in a variety of ways to great distances.

From this belief has arisen the very generally adopted system of quarantine. It is greatly to be deprecated that the English government, under advisement of Drs. Hunter, Foyer and Cunningham, themselves not only very distinguished men, but especial observers in Egypt and India, has given official expression to its disbelief of the value of quarantine regulations.

"Her Majesty's government offers a serious and well-founded objection to the theory generally admitted and the custom of quarantine. Sanitary measures have proved to be the only efficacious means of impeding the march of an epidemic."

I am free to confess, this was my own opinion formerly, and I held quarantine regulations to be respected simply because they had been formulated as laws. I must now think otherwise, since the weight of evidence would render it hard for the unprejudiced, judicial student to disbelieve in the communicability of cholera. A large volume itself would not contain the facts already collated. Dr. C. Macnamara, in a lecture published in the *British Medical Journal*, March 15, 1884, upon Asiatic cholera, states that for a long time he could not himself subscribe to the communicability of cholera, but a careful historical research convinces him of the fact, and he gives this illustration of his own personal experience: "A small quantity of a fresh rice-water stool, passed by a patient suffering from cholera, was accidentally mixed with four gallons of dirty water, and the mixture exposed to the rays of the tropical sun for twelve hours. Early the following morning nineteen people each swallowed about an ounce of the contaminated water; they only partook of it once, but within thirty-six hours five of these nineteen persons were seized with cholera. In this case the cholera evacuation did not touch the soil; as it was passed, so it was swallowed, but (and this is the most important part to remember) it had been largely diluted with impure water, and the mixture had been exposed to the light and heat of a tropical sun for twelve hours. In the year 1872 I was engaged in making some experiments on monkeys. For this purpose I exposed to the sun some fresh cholera dejecta in a pail full of dirty water. The following morning, at about 6:30 A. M, I and my assistant were shut up in a close room with these monkeys, experimenting upon them with this diluted cholera stuff. By 2 o'clock the same day I was suffering from a severe attack of cholera, and the same evening my assistant was seized with the disease. We were both of us very dangerously ill, passing into a state of collapse in a few hours after the commencement of the symptoms. The monkeys escaped without the slightest ill effects from our endeavor to give them cholera."

In the same journal for October, 13, 1883, (page 727) Surgeon General James Irving of the Bengal Army adduces certain facts showing the conveyance of cholera in India and they seem so conclusive that I briefly reproduce a portion of them here: Surgeon-Major H. B. Purves was stationed at Darjeeling in 1876. This is in the Himalayas, forty miles above the plains, 7,000 feet above the level of the sea and approached by a single road. The population was scanty, the climate healthy, and numerous tea gardens were scattered about the adjacent country. "Early in June, there was a regular cholera wave over the whole district, lessening in the plains, but rapidly increasing among the hills. Large gangs of coolies who had bolted from the lower ranges, had entered the hills, and were roaming about the forests, in some instances carrying their sick with them." In July a great and general improvement took place, and by August the disease had disappeared. The mortality reported by the police (who are the collectors of medical statistics in India), was 1,729 out of a population of 94,712, though Mr. Purves considers that there were at least twice as many deaths. Mr. Purves instances "special cases where human intercourse seemed undoubtedly to be the immediate cause of the appearance of cholera." He does not name the gardens referred to, but alludes to them by numbers.

"Garden No. 1.—The disease had been prevalent for some time at an adjoining estate. No case occurred until a man happened to go to the infected garden to bury his sister, who had died of cholera. Shortly after his return, he was attacked and died; and the result was a severe and fatal outbreak, causing a mortality of 150 among a population of 1,500.

"Garden No. 2.—The manager states that the infection was distinctly traced to communication with a bazaar close by. Seven hundred deaths.

"Garden No. 3.—It was discovered that new coolies from an infected garden had lately settled in the lines when the first case occurred. Eighty-five deaths among 650.

"Garden No. 4.—The outbreak was traced beyond doubt to the advent of new coolies from infected parts of the terai. Two hundred and eight deaths in 1,700.

"Garden No. 5.—Eight new coolies offered themselves for employment at a garden near Darjeeling and were entertained. Shortly afterwards, cholera broke out among them, and every one of the eight died. It was ultimately discovered that they had fled from an infected garden in the terai. The other coolies, who had hitherto been healthy, were also infected by the new-comers.

"Garden No. 6.—Seven new coolies from an infected part of the Kursang neighborhood arrived at a hill garden on which there had been no signs of cholera. Shortly afterwards the disease broke out; and, in twenty days of June, 72 died from the disease out of a total population of 100. It is worthy of note that a few villagers living in scattered huts in the same garden, but not working as coolies, escaped entirely."

Certain enthusiastic sanitarians, especially English, encouraged by the semi-official statements of governmental character, have lately broadly asserted that cholera cannot be communicated or transmitted, but is a local disease dependent upon pollution of the atmosphere, water, or soil. Sir W. G. Hunter, in his observations in Egypt, emphasized as cause the filthy conditions found there. Miss Florence Nightingale, in a letter recently published, repeats these views, and enforces sanitary measures as our only safe-guard, stating that quarantine, isolation, and the like, by distracting the attention from such measures, may tend fatally to aggravate the disease, and she quotes Dr. Cunningham as authority.

All this must not be underestimated. The truth lies very probably in the particular cause of infection, but this seed must find a soil favorable for its growth and dissemination, and here we find abundant cause to enforce all sanitary measures, just as in the entire class of zymotic diseases.

As in consumption, we must have not only the bacillus tuberculosis, but must find conditions favorable for its development; an unhealthy mucous membrane lining the respiratory tract, its ciliated epithelium impaired, or destroyed, furnishing a soil fitted for its growth.

In the present lax condition of English surveillance of her commerce, it becomes our Government to exercise a doubly careful enforcement of our wisely framed quarantine laws, while it behooves every citizen to look especially after his own sanitary surroundings. In something of the same spirit which actuates the English government, a leading editorial in the *Boston Medical and Surgical Journal* of Oct. 9, upon "Cholera and Rags," deprecates the action of our Government, and finds fault with the order issued by our indefatigable Surgeon-General Hamilton, forbidding the importation of rags for three months. The wisdom of such an order could only be called in question by the superficial or prejudiced critic.[1]

Having given so much space to the diseases in which bacilli are believed to play an important part, we must pass over more rapidly the group of diseases in which the round cell or micrococcal growths predominate. In this group have been classed, with greater or less evidences of a causative character, cholera of fowls, pyæmia and septicæmia in rabbits, swine-plague, pleuro-pneumonia of cattle, hydrophobia, small-pox, vaccine, gonorrhœa, whooping-cough, measles, scarlet fever, diphtheria and erysipelas.

The presence of micro-organisms is easily proven in the products of diphtheria. Ten years ago I demonstrated them in diphtheritic membrane. Rècklinhousen, Klebs, Eberth, and many others have discovered them in many organs and tissues. Oertel and Eberth are very sure of the causal relations of the micrococcus diphtheria. Klebs produced diphtheria in animals by the inoculation of pure cultures. None are of greater value and interest than the studies of Drs. Wood and Formad. They inoculated pure cultures in a number of instances, resulting in the death of the animal. Micrococci were abundant in all cases. Last autumn I instituted a series of cultures from a portion of tracheal membrane removed after tracheotomy. Careful microscopic examination was made at each inoculation, and the developing and the massing of the micrococci were carefully noted. Zoöglea masses were abundant in each instance. The tenth in the series covering a period of about 40 days was selected for inoculative experiments. From this six guinea-pigs were inoculated in the cornea of the eye. One died upon the second day, and three were killed on subsequent days. A membrane developed in the eye infected in all, and micrococci were numerous in each. The other two recovered with loss of the eye inoculated. During the inoculating experiments my assistant, Dr. Nelson, was infected and suffered a severe attack of diphtheria, from which he slowly recovered. Micrococci presenting the same appearance and characteristic massing were abundant in the proliferation about his tonsils. From this I reproduced in culture micrococci with the same characteristic appearance.

Fehleisen detected in several cases of erysipelas micrococci, especially in the parts and the periphery of the erysipelatous patch, at the very commencement of the process. He found them in the interstitial tissue, and also in the lymphatics, and in their neighborhood he found accumulation of leucocytes. He was able also to cultivate the organisms in a solid gelatine soil, and went on cultivating them to the twelfth and thirteenth generation. He noticed a different naked-eye appearance of the cultivated masses from that of cultivating masses of other septic micrococci. The cultivated organisms, when injected into a rabbit's ear produced, after an inocula-

[1] Space forbids any farther discussion of the cholera bacillus, but we would urge a careful study of Dr. Koch's address upon the cholera and its bacillus, delivered before the Imperial German Board of Health in Berlin, and translated and published in the *British Medical Journal*, August and September, 1884, at the close of which Prof. Virchow, after thanking Dr. Koch for giving this long and detailed account of his view, said: "I say decidedly for myself that, from the beginning, I thought it very probable that the bacillus was, indeed, the *ens morbi*; but from what I have heard to-day, my conceptions on the subject have arrived at a much greater degree of certainty."

tion period of twelve to eighteen hours, typical erysipelas, spreading to the head and the neck. In the affected parts, the micrococci were again seen. Removing the rabbit's ears twelve hours after inoculation stopped the process. Bearing in mind some well-known observations by Nélaton, Thiersch, and Volkmann, that patients suffering from malignant tumors improved, when contracting erysipelas, Fehleisen inoculated patients, some suffering from cancer of the breast, others from sarcomatous tumors, others from lupus, with the cultivated micrococci and produced, in seven out of nine inoculations, typical and in one case most severe erysipelas."

From the fluid in blisters of erysipelas patients I have cultivated and studied the micrococci very carefully. They were easily reproduced in a given series, but two or three injections and inoculative experiments failed of a development of the disease in the guinea-pig.

The relation of erysipelas to puerperal fever has long been suspected. An unfortunate series of cases occurring in the practice of a brother physician recently is worthy of notice. Three of the fatal cases I saw in consultation. Following a case of erysipelas early in January there supervened in his practice five fatal cases of puerperal fever, the last developed at about the tenth day, erysipelas following what seemed a slight abrasion in the middle line over the coccyx, up the back, and then diffusing laterally until it became general and before death had extended over quite the larger portion of the body. In bulbs infected at the bedside with secretion taken directly with much care from within the cervix uteri, micrococci were reproduced in rapid growth, and, in appearance, the micro-organisms could not be differentiated from the cultures from the blisters of erysipelas.

In the pus from gonorrhœa Neisser detected a micro-organism, a micrococcus; this he was able to cultivate and found its naked-eye appearances, as cultivated on gelatine, different from the septic micro-organism. Inoculations performed by him were not successful. Bockhardt has, however, recently repeated the experiment, cultivated the micrococci and obtained positive results or inoculations.

Dr. Queist, of Russia, reports that he has successfully cultivated vaccine virus, and that with this he has vaccinated with typical pustules and thereafter granting immunity against a second vaccination. No test has been offered as to the prevention of small-pox. He states that the micrococci developed into bacilli and these again into micrococci.

By the politeness of Dr. H. A. Martin, of Boston, we were enabled to inoculate bulbs directly from the animal serum. In these developed an abundance of micrococci single and in chains; they are very minute and active, combined in twos they resemble short bacilli and require high powers to differentiate. Our vaccine experiments, however, failed.

I would enter an earnest plea that every medical school should train a corps of competent observers, that each hospital set apart the needful appliances for the proper study of diseased tissues and secretions, and that the profession generally be requested to collect material which, in capillary tubes, enclosed in melted parafine, and other ways, may safely be transmitted by mail. By such means our present knowledge would be materially enhanced.

Although I have omitted much of real value, I believe we may conclude from this review that the time has passed when the critic of the germ-theory of disease can content himself with captious remarks "upon fashions in medicine, deluded followers of speculative theories, etc." As well might the geographer deny the existence of Africa because a topographical survey had not been made of its interior. All along the border lines of the unknown are enthusiastic explorers engaged in the difficult and dangerous work of investigation with a heroism and determined fortitude of a Livingstone or a Stanley. In these directions science is not without its martyrs. The investigations of a cholera commission in Egypt and India or yellow fever in Havana are not less dangerous than an expedition to discover the sources of the Nile or a ship's company in quest of the northwestern passage.

Let us, in common with grateful republican France, hold in loving remembrance her peasant-boy Pasteur and his school of followers; with the great and learned empire of Germany recognize in Koch and his distinguished colaborers the important discoveries already made; with England vie in doing honor to a Lister and his students who have revolutionized surgery; and shall we forget in our own country a Sternberg, a Belfield, a Formad, and many others whose work has added to our national fame? We are glad to pay tribute of loving remembrance to Johns Hopkins, the founder of a University in whose halls we are now assembled, which ennobles science; to a Senney who reaches a climax of national benevolence in founding a hospital; and last, not least, to the railroad prince of America who enlarges the boundaries of science by his magnificent gift to one of New York's most famous schools of medicine. We emphasize the ingratitude of kings and emperors as we hold up to our sons the glowing picture of a republic. As scientists, however, we must remember that we lack political potency. For us, no "Harbor and River Bill," under the flattering representation of national commercial development, carries the open sesame of patronage and votes. A National Board of Health is shorn of its usefulness and unmeasured good through ostensible motives of economy, while our millions are expended with a lavish hand to aid "the power behind the throne." Just now, the personal aggrandizement of some possible President is, in political estimation, of far greater consequence and importance than the prevention of contagious and zymotic diseases which annually carry to untimely graves their hecatombs of victims.

Let the medical profession arise to its just prerogative and power as conservator of the public health. Memorialize Congress to aid in the better solution of the important questions of preventive medicine, and the great wealthy government of the New, rival the Old World in a generous emulation in the settlement of questions fundamental to the health, happiness, and long life of her citizens.

HYDROCHLORATE OF COCAINE IN THE NOSE AND THROAT.

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After having noticed the statement by M. Du Cazal, that tincture of coca would relieve painful affections of the throat, I made several trials of the remedy, but failed to get satisfactory results; and since the publication of Dr. Agnew's report on the hydrochlorate of cocaine, being unable to obtain any of the latter, I have made trials of a strong solution of the extract of coca, and also of citrate of caffeine, which, from its close resemblance to cocaine, I hoped might produce similar local effects; but in both I was completely disappointed.

I was unable to obtain any of the hydrochlorate of cocaine until the 13th of this month, when I received a 2 per cent. solution from New York. My first trial was in a healthy subject, who, however, had a very sensitive Schneiderian mucous membrane. I ascertained by experiment that, with the moderate pressure applied, only about 10 per cent. of a spray applied to the nostrils would be lost. I then applied the solution in the left nasal cavity, first by a spray, and afterward by a hypodermic syringe fitted with a long probe-like nozzle. I applied in this case 26 minims of the solution during the space of forty-five minutes, from two to four minims being applied at intervals of three to six minutes, with the following result: Fourteen minutes after the first application there was a decided loss of sensibility, though pressure caused pain. In thirty minutes anæsthesia was nearly perfect, 18 minims having been used, and in forty minutes sensitiveness was returning. In forty-five minutes the membrane was quite sensitive, and in fifty minutes sensibility was almost normal, notwithstanding the continuous use of the cocaine. The soreness caused by the probing caused considerable pain, which radiated to the eyes and side of the head, and lasted for three or four hours.

Case II. Male, aged 19. Naso-pharyngeal fibroma. In this case a portion of the fibrous growth, which was attached to the side of the posterior border of the septum, had to be cauterized.

Two previous cauterizations had given the patient very severe pain, which "shot through his whole head." The nasal cavity was first washed out with Dobell's solution, and afterward with a weak solution of hydrochloric acid. It was then dried by absorbent cotton, and the two per cent. solution was applied with the syringe to the part to be cauterized.

I used 30 minims during thirty-six minutes, in quantities of four to five minims every five minutes, with the following results: In seven minutes sensitiveness was considerably diminished. In fourteen minutes sensitiveness greater than before. Thirty-six minutes after the first application, half a drachm of the two per cent. solution having been applied, he could feel the probe, but it caused no pain excepting in one spot. I then applied the cautery thoroughly about three times as long as on previous sittings, causing very little pain—he thought about one-tenth as much as formerly.

Case III. Male, aged 62. At two previous sittings I had removed from this gentleman's nares large mucous polypi, but to-day I found the base of one springing from the middle meatus of the right side. I dried the parts with cotton, and during ten minutes applied ten minims of a two per cent. solution as thoroughly as possible immediately about the polypus. Nineteen minutes after the first application, I removed the polypus with snare and forceps, and then cauterized its base with the galvano-cautery. He said the pain was very slight, not more than one-tenth what he had experienced from previous operations of the same character. He was exceedingly pleased at the result.

Case IV. Male, aged 34. Nasal polypi, with exceedingly sensitive Schneiderian mucous membrane. Applied first five minims of a two per cent. solution, five minutes later four minims more. Six minutes later parts not sensitive to probe. Cauterized base of polypus in middle meatus with galvano-cautery, with about one-fifteenth the pain he had experienced from a similar operation a week previously.

Case V. Male, aged 29. Hypertrophic catarrh. This patient came from Iowa, and as he wished to return the same evening, I desired to relieve him as completely as possible at one sitting. To the left naris, which was very sensitive when touched with the probe, the two per cent. solution was applied as in the preceding experiments in quantities of one to four minims at intervals of one to four minutes, with the following results: There was some numbness at the end of seven minutes, and very little sensitive at the end of eleven minutes, but eight minutes later, notwithstanding the continual use of the drug, the sensitiveness was about the same. I then transfixed the lower turbinated body and applied the snare without pain, though he felt it; but when the snare was tightened considerable pain was experienced. Three minutes later the sensitiveness of the part was about one-third that of the side not treated.

While doing this operation I received word that the cocaine ordered from Germany had arrived. I immediately sent for it and had a four per cent. solution made.

Second trial in Case V.—An hour and a half later I applied the four per cent. solution to the right naris. The cavity was first dried with cotton and twelve minims applied in quantities of one to two minims at intervals of two or three minutes during twenty-three minutes, at the end of which time he said the sensitiveness was more than at first, though it had been much obtunded ten minutes earlier. I then swabbed out the naris carefully and applied four minims more of the solution. Five minutes later I cauterized the inferior turbinated body thoroughly, causing about one-fourth the amount of pain ordinarily experienced from similar though much shorter operations.

Case VI. Female, aged 33. Anosmia dependent partially on submucous thickening of the upper part of the septum which was swollen so as to protrude three-

sixteenths of an inch. I first dried the mucous membrane with a jet of compressed air and then applied the four per cent. solution by means of the syringe, dropping upon the surface half a minim every half minute for three minutes, and afterward every three minutes until ten minutes had elapsed, when I found anæsthesia of the part complete. I then cauterized the swollen tissue thoroughly, passing the hot wire twice through its base without causing the slightest pain. A similar operation in the opposite naris had previously given this patient severe pain.

CASE VII. Male, aged 21. Deflection of the septum with exostosis forming a spur 1¾ inches long, projecting a fourth of an inch from the normal plane of the septum and decreasing the normal calibre of the air passage 80 per cent. The nasal mucous membrane was unusually sensitive. I applied a loose pledget of absorbent cotton below the spur, and having dried the membrane with the jet of air, repeatedly dropped upon the upper surface of the spur, from one end to the other, a four per cent. solution; averaging half a minim every half minute for the first six minutes. Some of this ran down into the cotton below the spur, but at the end of several minutes from the first application when the upper surface was completely benumbed I found the lower still acutely sensitive. I then removed the cotton and dried the passage with the air jet and applied more of the solution in the same manner as before, both above and below the spur. Twelve minutes after the first application, having used eight minims of the solution, I found the parts to be operated upon completely anæsthetized, I then sawed off the spur (this part of the operation requiring about four minutes), without causing the slightest pain. In removing the detached bone some pain was caused by touching the outer wall of the naris which I had not attempted to anæsthetize. Twenty minutes after the first application, sensibility was rapidly returning, and five minutes later the parts were again sensitive to the probe.

CASE VIII. Mrs. W. Small cystic tumor at the lower part of the left side of the base of the tongue about half an inch below the tonsil, with several diseased follicles in the tonsil filled with their desiccated secretions. I wished to destroy part of these with the galvano-cautery. But the patient so feared pain that I attempted to benumb the parts by injecting on the upper part of the tonsil the four per cent. solution, which trickled down so that I supposed the membrane over the cyst would be reached. Five minims were used in the course of five minutes, the mouth being kept open. Three minutes later the patient complained of something being lodged in her throat which made her retch and nearly caused vomiting, this sensation which was due to the benumbing effects of the cocaine, lasted about five minutes; as soon as the tendency to retch ceased I destroyed the cyst with the galvano-cautery, but the anæsthetic effect of the cocaine seemed to have entirely disappeared.

CASE IX. Male, aged 31. Hypertrophic catarrh. Dried the parts with the blast of air and then applied the four per cent. solution of hydrochlorate of cocaine to the inferior turbinated body of the right side, eleven minims in thirteen minutes, from one-half to one minim every minute.

In this case, as in others of hypertrophic catarrh, the solution caused the swelling to almost completely disappear by the time anæsthesia was complete.

The turbinated body was cauterized thoroughly without pain. The patient complained of a sense of dizziness and slight dyspnœa for ten minutes, but had no unpleasant sensations afterward.

CASE X. A little girl, aged 6. Adhesion of turbinated body to septum, causing stenosis of right naris.

Applied the solution as in the last case, excepting that half of it was used with the atomizer and only eight minims were employed.

In fourteen minutes anæsthesia was complete and the adhesions were broken down without pain.

Second application in case II. On the patient's next visit to my office I applied the four per cent. solution to the naso-pharynx, which still contained quite a large mass of the fibrous growth. He has always complained bitterly on any manipulation of the part, but after having used ten minims by the atomizer, a minim every minute, the surface was anæsthetized, however, by the probe I found that deeper parts were still sensitive.

I then introduced, by means of the probe-pointed syringe nozzle, six minims more in various places where the contact of the probe caused pain. In twenty-five minutes the parts were so thoroughly anæsthetized that I commenced the operation of removing the mass with cutting forceps. The operation lasted about ten minutes and gave no pain excepting in one small spot, though he said he felt the instrument whenever introduced or moved.

From my experience with cases, one to five inclusive, I concluded that when the solution is applied in the naris, every four or five minutes a partial anæsthesia occurs in ten or fifteen minutes after the first application, and that it is followed, like the first effects of ether when given slowly, by a period of two or three minutes of exalted sensibility, and that if its use be continued (possibly without further use) the maximum effects of the anæsthetic are quickly reached. The anæsthesia disappears in about five or ten minutes. These cases also suggest the query, whether, after a short time (thirty to forty-five minutes) it might not be very difficult to maintain anæsthesia even by repeated applications? These same cases also convinced me that a two per cent. solution is not ordinarily strong enough for use in the nose. From all the experiments, I conclude also that the drug does not act satisfactorily unless the mucous membrane is free from secretions, and wiping out the nasal cavity with cotton, though it dries it for a few seconds, excites excessive secretion directly afterward, therefore drying may be much better accomplished by the jet of air.

These cases, as far as they go, also suggest the advisability of overcoming the sensitiveness as quickly as possible by frequent applications, which keep the surface constantly bathed in the solution. When used in the fauces, it was entirely unsatisfactory in one case, but I attribute this partly to the

particular patient and partly to the imperfect application of the solution. Dr. Solis Cohen's experiments with it in the larynx have not been satisfactory, but we will doubtless soon learn how to obtain better results from its use in the fauces and larynx.

One of the remarkable properties of this drug, which I observed when I first applied it to the swollen mucous membrane of the turbinated bodies, is that of causing prompt and rigid contraction of these tissues. This action has proven to be uniform, and I have learned by experiment that the contraction may continue several hours. This property will render the cocaine almost a specific for the relief of the "stuffing up" of the nose which occurs in acute colds, hypertrophic catarrh and hay asthma, as well as for the throat deafness, which results from swelling of the mucous membrane lining the Eustachian tubes.

64 State St., Chicago, Nov. 18, 1884.

MURIATE OF COCAINE IN OPHTHALMIC PRACTICE.

BY CHAS. J. LUNDY, A.M., M.D.,

PROFESSOR OF DISEASES OF THE EYE, EAR AND THROAT IN THE MICHIGAN COLLEGE OF MEDICINE, DETROIT.[1]

MR. PRESIDENT AND GENTLEMEN:

I take the liberty of calling your attention to the new local anæsthetic, muriate of cocaine, a solution of which I here show you. The opportunity of making some remarks upon this important drug affords me much pleasure, because my former preceptor, Professor H. D. Noyes, of New York, was the first to bring it to the notice of the profession in this country. While attending the Ophthalmological Congress, in Heidelberg, in September, Professor Noyes witnessed the experiments of Dr. Koller before the meeting, and in the *Medical Record* of October 11 he relates what he observed. The news that a valuable local anæsthetic had been discovered—one which would, in many instances, obviate the necessity of administering general anæsthetics, such as chloroform, ether, etc.—naturally excited great interest, especially among ophthalmic surgeons. Indeed, medical men all over the country are using it in operations on the eye, the nose, the uterus, etc., and already many successful cases have been reported.

I have made several experiments with it, and have employed it before operating in a large number of cases.

Applied to the conjunctiva it produces anæsthesia of that tissue which is nearly, if not quite, absolute. Applied to the mucous membrane of the lip or cheek it produces a feeling of numbness which finally becomes tolerably complete anæsthesia. Employed in the nose it produces such complete anæsthesia that the actual cautery has been employed without pain. It is evident, therefore, that muriate of cocaine is capable of producing paralysis of sensation in any part of the trigeminus, the great sensory nerve of the head and face. It has been used successfully in operations on the uterus, and it is but fair to presume that it will temporarily paralyze sensation in any part of the human economy. This, however, has been denied, and some experimenters claim that it does not affect the iris. In this latter view I do not concur. It paralyzes the ophthalmic division of the fifth very generally, and it is not at all probable that it would exert a paralyzing influence over one part of a nerve and not over all of it. The ciliary nerves supplying the iris with motion and sensation contain branches derived from the ophthalmic division of the fifth, with branches from the third and from the sympathetic. Now that muriate of cocaine does affect the iris we have positive proof, for it produces partial paralysis (as we shall see) of the sphincter of the pupil. If it paralyses sensation in other parts of the ciliary nerves, and produces motor paralysis of the iris, it seems impossible that the iris should escape its anæsthetic influence. Indeed my observations and experiments lead me to believe that if a sufficiently strong solution of the muriate of cocaine be employed, the iris also loses its sensibility for a time. I can readily understand that it will be much more difficult to produce paralysis of sensation in the iris than elsewhere, for the aqueous humor which bathes the iris dilutes the medicine which passes into the anterior chamber by endosmosis. Could the anæsthetic come directly in contact with the iris there can be no doubt that tolerably complete anæsthesia would follow.

In eye operations I now employ a four per cent. solution of the muriate. Of this I instil into the eye two drops every three or four minutes, until eight drops are used. From its use in this manner I have observed the following effects: The cornea begins to lose its sensibility in three or four minutes, and in many cases the corneal anæsthesia is complete in five minutes, while in other cases it requires eight or ten minutes to produce this result. In one patient, who had an irritable, painful ulcer of the cornea, all pain was relieved in less than five minutes, and a few minutes later the ulcer was touched with a sharp instrument without producing the slightest sensation. The conjunctiva loses its sensibility in six to ten minutes, and can be firmly grasped by a fixation forceps without the knowledge of the patient. The anæsthesia of the cornea and conjunctiva lasts from twenty to thirty minutes, after which normal sensation is soon restored.

Its action on the pupil and on the muscle of accommodation (ciliary muscle) was observed as follows: In five or six minutes the pupil began to dilate. The dilatation increased slowly for fifteen or twenty minutes, at which time the pupil was twice the normal size. In no case did I observe that the pupil was dilated *ad maximum*. The dilatation of the pupil lasts from twelve to twenty hours, according to the quantity and strength of the solution employed. At no time was the pupil wholly irresponsive to light. In twelve to fifteen minutes I observed the first signs of failure in the power of accommodation. In twenty minutes the effect on the ciliary muscle was tolerably

[1] A paper read before the Wayne County (Mich.) Medical Society.

well marked, and print which, before the use of the medicine, could be seen at five or six inches, could not now be seen nearer than twelve to fourteen inches. Repeated attempts to fully dilate the pupil, and render it wholly irresponsive to light, were not successful in my hands. Neither did I succeed in producing anything like complete paralysis of accommodation.

From these experiments it will be seen that muriate of cocaine not only produces tolerably complete paralysis of sensation, but that it is also capable of producing partial paralysis of motion. However, the drug seems to exert slight influence over motion as compared with its influence over sensation.

It was observed that slight hyperæmia of the parts followed its use in all cases. It was also observed that the parts bled more freely than is usual when incisions were made. This would indicate that it exerts at least some paralyzing influence over the vaso-motor nerves. However, the bleeding in such cases was by no means so free as to indicate anything like complete vaso-motor paralysis. I should be inclined to believe that its influence over the vaso-motor nerves was, like that over motion, rather slight.

In operations I have employed it in extraction of cataract, in enucleation, in strabotomy, in paracentesis of the cornea, in the removal of tarsal tumors, in canthoplasty, in lachrymal operations, etc. In one extremely nervous, timid boy a little chloroform was administered, but not on account of pain.

In one case of enucleation the operation was almost complete before the patient gave any evidence of feeling pain. Then a little chloroform was given and the operation completed. This was in a bad subject for an anæsthetic, and the risk of complete anæsthesia from chloroform was avoided. I am confident that a less nervous patient would have gone entirely through the operation without requiring any general anæsthetic like chloroform. In an operation for cataract the patient said he felt no pain whatever, and was cognizant of any operation only by feeling a pressure upon the ball—possibly the pressure of the shell scoop in stroking the cornea in delivering the lens. In operations on the lachrymal apparatus, Bowman's operation was done with very slight pain. In one case the slitting of the nasal duct produced as much suffering as usual. Where I succeeded in getting any of the medicine through the duct into the nose, the passage of the knife produced but little discomfort. In one very nervous subject who fainted away during a previous operation for tarsal tumor, no pain was felt in a similar operation after the cocaine had been used. Patients upon whom I operated for strabismus say they experience a sensation of drawing or pulling when the muscle is raised upon the strabismus hook.

In my experiments upon the skin the results were not entirely satisfactory. In some cases the sensibility of the skin was perceptibly diminished, while in other cases it seemed to produce little or no effect. It is probable that to produce anæsthesia for general operations in surgery, it will be necessary to inject the cocaine hypodermically.

Just what will be the range of usefulness of muriate of cocaine, we cannot now say positively, but from present indications it seems that it is destined to fill an important place in our armamentarium. Should there be no dark side to the picture which now seems so bright, great things may be expected from this new drug, which is now attracting such universal attention. Many exaggerated statements will undoubtedly be made regarding it, and it will be some time ere we will be able to correctly estimate its real value.

MEDICAL PROGRESS.

SURGERY.

GASTROSTOMY FOR STRICTURE OF THE ŒSOPHAGUS.—Mr. John Fagan (*British Medical Journal*) narrated before the British Medical Association the leading features in the histories of two cases of stricture of the œsophagus; the first was in a man 46 years of age, on whom the catheter was passed until it would no longer penetrate the stricture. An opening into the stomach was made, after which the patient lived for three weeks, with very little improvement, dying suddenly from collapse. The union between the stomach and abdominal walls was complete, except at one point at the upper angle, where the attachment gave way. As the patient died suddenly after being fed, it is more than likely that some fluid passed into his peritoneal cavity. In the second case the patient died thirty-six hours after the operation. Mr. Fagan suggests the following rules regarding the performance of the operation of gastrostomy:

1. In cases where the obstruction is partial, it should not be entertained in non-malignant cases so long as a bougie can be passed, or a tube worn to enable the patient to take sufficient nutriment. But should the passing or wearing of an instrument cause great irritation, while the difficulty in overcoming the obstruction is increasing, the operation may with justice be undertaken. For by it the affected parts are placed in a state of physiological rest, which tends not alone to the improvement of the part, but renders it more amenable to other forms of treatment.

2. In cases due to malignant obstruction, where the dysphagia is becoming both painful and more marked if the permanent wearing of a tube cannot be tolerated, there should be no time lost in performing a gastrostomy.

3. In cases where complete obstruction has existed for a short time, the patient's strength being fairly sustained by enemata, and there is no malignancy, the operation may be undertaken with hopes of improvement; in malignant cases, at this stage, it should not be urged.

4. In the advanced stage of complete obstruction, no matter what the cause be, the operation should not be undertaken, for the patient, if he survive the immediate shock from it, cannot live more than a few days, that are passed in increased discomfort.

Regarding the mode of performing the operation,

Mr. Fagan does not think it makes much difference how the incision is made, provided it is just large enough, and so placed as to allow of the stomach being seized and easily drawn through the wound.

Theoretically, an improvised sphincter to guard the fistulous opening is a very desirable thing; but if the vertical incision renders the operation more tedious or difficult, it is questionable if the practical advantages supposed to be gained by it will make up for that. The usual incision is the oblique, commencing a little below, and to the left side of, the tip of the ensiform cartilage. By this the stomach is best exposed and most easily secured. Here the mistake is generally made of placing the line of incision too near the border of the costal cartilages. The finger's breadth that is usually recommended looks, before operation, just sufficient for the purpose; but after the incision is made the upper flap is retracted and gets tucked up close to the ribs, rendering it impossible to pass the outer ring of sutures. The incision should be begun about an inch below the tip of the ensiform cartilage, a little to the left of the median line, and extended obliquely downwards and outwards, keeping at least fully two inches from the border of the costal cartilages.

The ordinary method of attaching the stomach to the abdominal wall by a single ring of sutures, although simple and expeditious, is not a secure one. Professor Ditch, of Vienna, after incising the abdominal wall, attaches the parietal peritonæum to the skin by numerous points of fine suture. By means of a stout curved needle in a needle-holder, he passes a circle of sutures, forming broad loops, through the outer circle of the stomach, and then through the whole thickness of the abdominal wall, about half an inch from the edge of the incision. By this means he brings a broad band of visceral and parietal peritonæum in contact. Between the large sutures he passes a number of fine ones, and in this way secures a close attachment of the stomach to the abdominal wall; this completely occludes the peritoneal cavity, and removes any risk of the passage of fluid into it.

To establish immediately a fistulous opening in the stomach, a suture armed at one end with a curved needle, at the other with a straight one, should be used, the curved one should be passed by means of a needle-holder through the outer coats of the stomach, and then through the abdominal wall, about an inch from the edge of the wound; the straight through the wall nearer the incision; and the suture then tied in the usual manner over some suitable resisting medium. In forming the fistulous opening Mr. Fagan, after his incision, introduces two ordinary silver probes bent at right angles about an inch from the point, and pulls with them at right angles to the muscular fibres of the stomach, until a No. 9 catheter passes in readily. After the catheter is withdrawn the opening is closed, and no regurgitation occurs.

In malignant cases he would complete the operation at once, in non-malignant, and in the very early stages of malignant obstruction, Howse's method of dividing the operation into two stages is the more preferable, as by it a more permanent and accurate attachment is more likely to be secured all round the fistula; besides the patient is in a better condition to be subjected to such treatment.

Mr. Macnamara also reported a case of a woman, 57 years of age, where, after the usual incision of the abdomen, a fold of the stomach was drawn out through the wound, transfixed by a needle and thick silver wire, and so secured to the skin as to remain outside of the wound. On the seventh day after the operation, an opening was made through this fold of the stomach, sufficiently large to admit of the passage of a No. 7 catheter. At the end of a month she was able to get up and move about the ward, a small fistulous opening remaining, through which she was able to inject her food by means of a properly fitted tube. She passed natural motions and her health had much improved.

In the discussion which ensued Dr. Edwyn Andrew said that as the colon had been opened by good operators, instead of the stomach, he would mention a very ready test; that was that the external coats were much thicker over the stomach, and might be readily pinched up by the finger and thumb; so that, if they were once felt in the dead body, this mistake could not occur.

Trephining in Mastoid and Tympanic Disease.—Dr. W. S. Wheeler, in the Dublin *Journal of Medical Science*, records the particulars of three cases of this treatment with successful results. He gives seven different ways in which suppurative inflammation of the dura mater follows carious disease of the osseous structures, petrous portion of the tympanum, cavity of the labyrinth (carious disease of), and the wall of the external auditory meatus, etc.

1. Through the internal auditory meatus, in which are prolongations of the membranes.
2. Through the hiatus fallopii.
3. Through the aqueduct of the vestibule.
4. Through the tegmen tympani, always thin in the normal state and sometimes deficient over a limited area, so as to place the lining membrane of the tympanum in direct contact with the dura mater.
5. Through the fissura petro-squamosa the dura mater sometimes sending in a vascular process its entire length into the tympanum and mastoid apophysis, and by means of which the central envelope is placed, with regard to its nutrition, in more intimate relation with the middle ear.
6. Occasionally by means of a slit for the dura mater, situated between the epiotic and opisthotic elements, near the aqueduct of the vestibule.
7. Through the canals of Verga and vascular canals of Maas; the latter are behind the superior semicircular canals, and connect the middle ear with the middle cranial fossa.

The record of the results of this operation show that it is a fairly successful one; and, on the other hand, that, from the expectant treatment in suppurative inflammation, there is little to look forward to but a fatal result. Ninety-eight cases of perforation of the mastoid process have been collected by Poinsot (Dict. Méd. et Chirurg.), in 35 of which the trephine or trepan was used; in the remainder other instruments—gouge, drill, trocar, etc., were employed.

Of the total number of cases, 15 terminated fatally; in 2 the result is not stated; in 5 there was no recorded result; 5 others were under treatment at the time at which their cases were reported; the rest were successful. Of the 35 cases in which the trephine or trepan was used, 4 terminated fatally; in the total number of cases, the results of which are differently specified, 17 per cent. were fatal, and 21 per cent. successful. Buck (of New York) has collected 37 cases of suppurative inflammation in which the cases were left to nature (expectant treatment); 34 were fatal.

That the operation should be practised early is a self-evident fact; it is useless when pyæmia, meningitis, or phlebitis of the sinuses have appeared, although the first cerebral manifestations should not intimidate the surgeon from operating. Setons and issues are of little use. A well-accomplished operation will always give free vent to pus when existing, and prevent its passing to the brain through some of the numerous channels as recorded, and will thus save the patient. Dr. Wheeler deprecates the use of the gouge and galvano-cautery over the mastoid process, such a process being likely to set up irritation and inflammation. Unless the suppuration is comparatively superficial, he would not operate over the mastoid process, where one cannot remove the entire portion of the bone, on account of the proximity of the lateral sinus, and so cannot expose the dura mater, which is very essential. The site selected for operation should be such as to place the lower border of the trephine on a level with the external auditory meatus, and anterior to a line dividing vertically the mastoid process. By adopting this course, there will be no danger of wounding the lateral sinus, the tympanum and mastoid cells will be opened, giving full exit for discharge, the dura mater will be exposed, and should pus exist between it and the cranium, there will be ample freedom for its escape.

OPENING OF GALL BLADDER AND EXTRACTION OF BILIARY CALCULI.—Dr. Langenbusch, of Berlin (*Independence Belge, Midland Med. Miscellany*), has recently performed this operation upon M. Eugene Anspach, the Deputy-Governor of the National Bank of Belgium, who has been for many years suffering from a collection of gall stones, which have kept him in a state of aggravated suffering, and have latterly defied all measures of relief. M. Langenbusch, summoned specially from Berlin, proposed to lay open the gall bladder, with antiseptic precautions, admitting, however, that he had only performed this operation four times, and that but one of these cases recovered. M. Anspach's family and friends were much dismayed at this announcement, and begged that the operation should not be performed. M. Anspach was firm, and reflecting that without it he would not live long, and that in the mean time his life would be worse than death, decided on the operation. Even at this supreme moment the banking mind asserted itself, and M. Anspach remarked: "After all, one in four is 25 per cent., and that is a fine dividend." "You have had one recovery already, doctor," he remarked, "and I will be the second," an element of confidence which no doubt had something to do with the result. The operation was performed on the 9th of September, and 125 calculi were extracted from the gall bladder. M. Anspach suffered a good deal, but is now out of danger and in complete comfort.

MEDICINE.

INTESTINAL INTUSSUSCEPTION.—Mr. A. K. Young, (*British Medical Journal*), reported a case of intestinal intussusception to the British Medical Association, in which there had been no evacuation from the bowel for two weeks, large enemata of soap and water, castor oil, and opium failing to produce any effect. Mr. Young connected the long enema tube to a strong elastic one coming from the waste cock of the water tank on the roof of the house about 30 feet above the patient. The tank-water was agreeably tepid from the rays of the very hot sun to which it lay exposed. The enema tube was passed into the rectum as high as it could be without violence, and this very enormous and steady pressure was sustained for five minutes without the slightest effect. This was repeated on the following day and accompanied with kneading, and was repeated a third time without effect. The belly was swollen but no especial discomfort was felt.

Mr. Young next proceeded to introduce mercury into the stomach, through a tube by means of a glass funnel, first using two pounds of the quicksilver and four hours later, one pound and two drachms—making in all three pounds and two drachms of the metal. From the record, although aided by succeeding enemata of oleaginous substances, this remained in him, producing pain and vomiting, until the third day thereafter, when the man left the hospital to die at home, and drove six or seven miles in a cart over a rough mountain road. On the fifth day he had two evacuations containing quicksilver, which from that time on gradually forced its way out, *i. e.*, during the succeeding nine days. Neither during the time the mercury was blocked up in the abdomen, nor at any time after its discharge, were there any symptoms, constitutional or local, to indicate its presence.

Mr. Young justifies his treatment by stating that he desired to give a sufficiency of quicksilver to liberate by its weight the strangulated part. In general terms, we may look upon the containing and contained portions as forming a bag, the floor of which is formed by the narrowed descending bowel, and the sides of the bag by that portion of intestine immediately above and continuous with it. The exterior descending portion is reflected from the lowest part of the strangulated gut, and upwards external to it as far as the upper part of the strangulation, then turns downwards on itself externally, and is continuous with that which is below the strictured part. In all these reflections, the serous membranes are opposed to and in contact with each other. When the upper portion descends and is strangulated, at that point of strangulation the bottom of the bag is formed with the aid of the up-

per portion which descends to the stricture, and is capable of containing more or less of whatever falls into it. If we could take this part of the bag immediately above the strictured point, and pull it upwards, or distend it laterally, the strictured part would be pulled upwards or outwards by the distension, the lymphy attachments of the opposing serous surfaces would yield, and ultimately the strictured portion would be raised out of its narrowed bed, and the bowel set free. By introducing into this bag a considerable weight of mercury the sides of the bag would be distended by the heavy and movable medium, every movement of the body would keep this in continual motion, and as this pouch was thus increased, and the weighty mercury constantly exerting pressure and a dragging, now on this side, now on that, and more and more still as it became more and more distended, and the tendency of all this to pull at the upper descending part of the intestine, and drag it over the reflected brim of the detained gut, the end in view might ultimately be attained.

That there was a true invagination there can be no doubt; the different discharges at uncertain times, with varying quantities of the metal, until the channel of the intestine became sufficiently open, and then followed by the enormous discharges, from the doughy beds of retained fæces, the perfect health the man enjoyed for weeks, the recurrence of his symptoms excited by violent exertion, and the perfect occlusion of the bowel until he died, all prove this to be intussusception.

Case of Lipoma of the Arachnoid.—Dr. Braubach (Arch. für Psych. und Nervenkrankheiten) records a case of lipoma of the arachnoid of the cervical cord, and extending to the point of exit of the fourth and fifth dorsal nerves. The cord was completely compressed and displaced to the left side. Below the region of compression there was descending degeneration of the pyramidal columns.

The nature of the tumor is very rare in this situation. Very few such cases have been recorded: one by Abré, one by Athol Johnson, one by Virchow, and a case of myo-lipoma by Gowers. The paraplegia of the lower limbs, their extreme anæsthesia, the bladder weakness, the extreme contraction of both lower extremities, the increase of their tendon reflexes, need no comment. They depend partly on the compression of the cervico-dorsal cord, partly on the descending secondary degeneration of the lateral pyramidal tracts.

Of greater interest is—

1. The fact that, in spite of the extreme compression and degeneration of the affected part of the cervico-dorsal cord, the conduction through it, at any rate of intense impressions of pain, was still retained.

2. The fact that, in spite of the great degeneration of the compressed parts, the roots on the right side that came off from these affected regions showed only very slight degeneration, the roots on the left side none.

3. The fact that the left upper extremity could be moved as in health, without any paralysis or contraction; whilst the right arm was paralyzed and extremely contracted. The latter symptom was, doubtless, due to the great amount of stretching of the right spinal roots, in consequence of the displacement of the cord to the left; and a permanent state of irritation was present throughout, which gave occasion to tonic contraction of the right upper extremity.—Bristol *M. C. Jour.*

MATERIA MEDICA AND THERAPEUTICS.

On the Use of Chlorate of Potash in Burns and Scalds.—Dr. J. Walton Browne (*British Medical Journal*) recommends the use of a solution of chlorate of potash in burns and scalds as of the first importance. In the treatment of burns and scalds of the second and third degree the lotion is especially useful; in many of these cases perfect healing has taken place in four to five days. In severe burns of the fourth or fifth degree it is also useful, seeming to favor the formation of granulations after the separation of the sloughs, and certainly no other remedy so thoroughly keeps the wounds clean and sweet. In superficial forms, after a few applications, a zone of new skin appears at the margins of the broken surface, and proceeds towards the centre until healing is perfect. It is quite common to see a border of newly-formed cuticle in the short space of twenty-four hours. The method he adopts is as follows:

In superficial burns he directs the blisters to be punctured, and a bread-and-water poultice to be applied over all the injured surface every fourth hour, until the cuticle has been detached; this is generally accomplished upon the removal of the second poultice. Then pieces of lint of the required size, saturated with the solution of chlorate of potash, five grains to the ounce, are applied four times a day. The lint is covered over with gutta-percha tissue or oiled silk; all dressings being retained *in situ* by a bandage. The lotion must not be of greater strength than five grains to the ounce; of this strength it acts as a sedative, although at the same time stimulating the capillaries to the formation of new skin. If applied much stronger it causes pain—in fact, it acts as a caustic. In some cases, where the lint occasionally adheres to the wound, and is difficult of removal without injuring the capillaries and causing bleeding, Dr. Browne adds to the chlorate of potash solution some glycerine, in the proportion of two ounces to the pint.

In the treatment of very deep burns he advises the application of poultices until all sloughs are separated. Granulations then spring up, and nothing seems to increase their activity and vitality equal to the potash solution, of the strength of five grains to the ounce. Should the granulations become weak, flabby, or too exuberant, we then use a potash lotion of the strength of ten grains to the ounce, and at the same time prescribe a mixture of chlorate of potash and tincture of perchloride of iron to be taken three times a day. At any time, should there be offensive discharges, one can combine the potash solution with some permanganate of potash.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, NOVEMBER 22, 1884.

DIAGNOSIS OF DILATATION OF THE STOMACH.—In Vol. 3, No. 9, of this JOURNAL we called attention to M. Bouchard's paper upon this disease, as presenting some novel points of interest. He, it will be remembered, diagnosticates ectasis of the stomach by the presence of the succussion sound below an imaginary line, connecting the ubilicus with the last rib of the left side. Du Jardin-Beaumetz objected to this as unreliable.

It is interesting and instructive to see what other French and German authors regard as the chief diagnostic feature of this disease. Dr. Enrique de Argaez, in a recent monograph on "Adynamic Dilatation of the Stomach," (The *Medical Record*, Oct. 18, 1884) states that in typical cases he has observed a prominence of the epigastrium, and, more rarely, seen the peristaltic movements of the stomach through the abdominal parietes. Palpation generally yields the splashing sound, characteristic of the presence of gas and liquid in the organ; but the actual dimensions of the dilated stomach can only be determined by percussion. M. Germain Sée who was on service in the Hôtel-Dieu where de Argaez observed his cases, considers the existence of ectasis of the stomach proved, if gastric resonance extends more than twelve or fifteen centimetres beyond the line of the left nipple, or, if a succussion sound can be obtained six hours after eating.

Doubtless the most accurate method of determining the size of the stomach is by percussion, the low-pitched tympanitic resonance, elicited over the organ, being readily recognized when heard alone and unmixed. If the stomach contains liquid, or if the intestines be strongly distended with flatus, or if there exists enlargement of the liver or spleen, the characteristic gastric resonance is masked, and it becomes impossible to outline the organ. Moreover, the position of the patient's body is of influence, and hence a diagnosis should only be attempted in the dorsal *decubitus*. Even under the most favorable conditions, it may be doubted if a diagnosis by this means is possible, unless the degree of ectasis be considerable. Roughly speaking, the normal situation of the stomach is between the median line and left hypochondrium, and the area of gastric tympany extends but a hand's breadth to the left,—to the lower curving border of the ribs downward and outward, while according to Lichtenstern its upper boundary is on the sixth rib, just below the cardiac impulse, at the apex of the angle formed by the liver and lung. This point is where the stomach most nearly approaches the anterior wall of the trunk and corresponds to its uppermost limit.

Lichtenstern was in the habit of percussing the abdomen by means of a pleximeter, and was thereby able to bring out a note of metallic quality, known in German as "*Metallklang*." He even went so far as to state that in several instances, in consequence of rapid peristaltic contractions of the stomach, he has recognized a scale of metallic notes of different pitch. This, however, is a refinement of diagnostic skill beyond the attainment of most practitioners. As a rule the general practitioner of medicine will have to content himself with his ability to detect the extremer degrees of gastric dilatation. W. P. H. Wagner, who has investigated the boundaries of the organ in question by Frerich's method of distending it with carbonic acid, states that during such temporary dilatation the left border of the great curvature reaches close to the left anterior axillary line, while a portion (one-seventh) of the lesser curvature passes beyond the median line to the right, thus leaving six-sevenths lying toward the left hypochondrium. Gerhardt ("Auscultation and Percussion," Tübingen, 1876) considers the diagnosis of this condition in most cases a difficult task, but rendered quite certain if gastric resonance can be elicited below the umbilicus, and to the right of the median line. Valuable aids to diagnosis are epigastric bulging, visible peristalsis of the organ, succussion sound, dyspeptic symptoms, etc. Gerhardt also says the pressure of adjacent organs does not displace, but only alters the shape of the stomach. Hence, percussion, by detecting the characteristic note of the stomach at some point outside of its normal limits, ought to afford the surest means now at command of an accurate diag-

nosis. According to Dr. de Argaez the diseases from which this condition of adynamic dilatation is to be differentiated, are gastalgia, gastric ulcer, chronic gastritis of alcoholism, fibrous stenosis of the pylorus, and carcinoma. In many respects the symptoms are similar, but in all cases the distinction turns on the discovery of ectasis in the way already detailed.

State Boards of Medical Examiners.—A few weeks since we received from a member of the Ohio State Medical Society a copy of a proposed law for establishing a State Board of Medical Examiners in that State, accompanied by the request that we would publish the same and commend or criticise its provisions, as we might deem proper.

Accordingly we published the proposed law in full, under the head of State Medicine, in the number of the Journal for November 1, 1884, and accompanied it by a short editorial in the same number, not criticising in detail the provisions of the act, but simply alluding to the difficulty of framing such laws in a way to accomplish practically the objects for which they are designed, and stating in general terms the principles on which they should be based and the essential provisions they should contain, leaving it for each reader to see wherein the provisions of the proposed Ohio law differed from what we deemed the proper ideal. For this we speedily received a sharply deprecatory letter from the learned Secretary of the State Board of Health of West Virginia, which we give our readers in full under the head of State Medicine, in this number of the Journal. It will be seen that our correspondent has based his whole letter on the assumption that in our editorial we had opposed the establishment of State Boards of Medical Examiners altogether, and has therefore been deprecating the work of an enemy existing only in his own imagination. We commenced advocating the entire separation of the business of teaching medicine from the authority to grant licenses to practice and the establishment of State Boards of Medical Examiners, together with the adoption of a fair standard of general education before permitting the student to enter upon the study of medicine, before our correspondent was old enough to know the members of one profession from another. And we have continued to advocate the same on all suitable occasions from that time to the present. And in the editorial which our correspondent so much deprecates, we stated clearly the grounds on which the enactment of such laws could be justified, and the essential provisions they should contain. And if our correspondent or the readers of the Journal desire to examine our views on the whole subject of medical legislation, it is only necessary for them to turn to the address we delivered before the Association of American Medical Editors, at the meeting in Cleveland, June, 1883, which was published in full in Vol. 1, No. 2, of this journal. The proposed law for Ohio is in many of its features a good law. It is better in some respects than the law regulating the practice of medicine in Illinois, to the practical operation of which great benefits have been ascribed. Consequently, if the friends of medical legislation for securing a higher standard of education and usefulness for the profession in Ohio cannot agree upon certain alterations and additions, we would strongly urge its adoption by the Legislature as it is, trusting to the wisdom of future Legislatures for the removal of its defects. But we would much prefer that the first section of the proposed law should be amended by striking out the proviso, constituting the last three lines of the section. And from the second section we would strike out all after the word Governor. We can see no possible good to result from incorporating into legislative acts a recognition of any so-called "systems of medical practice."

The only legitimate object of such a law is to secure to the people the services of medical men or doctors, of thorough education and fair practical skill. Consequently neither in the selection of members of Examining Boards, nor in the methods of examination, should the law recognize, or attempt to make, any distinction regarding systems, sects, pathies, or isms in medicine. The appointing power should only be restricted in the selection of members of the Examining Boards to such members of the medical profession, as had themselves, received a thorough general and professional education, had been actually engaged in practice in the State not less than ten years, and had acquired a good moral and professional reputation. There should be no such distinction in the examination of candidates by the Board, as is made in Section six of the proposed law. The sole object of the examination is to determine the extent of the candidate's knowledge of the various branches of medical science and art, and of all the branches included in the list, none are of so much direct importance to the sick as those called, Principles and Practice of Medicine and Therapeutics. Consequently, instead of inquiring as to what theory or pretended system of practice, the candidate intended to adopt and shaping his examination accordingly, the Board should preserve the same uniformity and impartiality in the examination on these

as on all other branches. Indeed, the examination on these important branches should be so broad and thorough in all their ramifications, as to show the candidate to be possessed of sufficient knowledge of diseases and medicines to make him a reasonably safe practitioner under any supposed system of practice; then simply license him to practice medicine, in its broad and unqualified sense.

Section 8, of the proposed law, should be amended by striking out all after the words "of good moral character," and inserting in its place the following: "and has devoted three years to the study of medicine, including human anatomy, histology, physiology, chemistry, general and medical, materia medica, therapeutics, general pathology and pathological anatomy, hygiene and sanitation, medical jurisprudence, practice of medicine, surgery, obstetrics and diseases of women (the three latter including all the specialties carved from them), with clinical medicine and surgery in hospitals containing not less than fifty beds and an average attendance of not less than thirty patients; at least six months of each year having been spent in direct attendance on some legally established medical college having the necessary facilities for instruction in all the departments named, including laboratories for practical anatomy, chemistry, and microscopy."

Such a provision in the law, at once, defines what constitutes the necessary field of medical study for the guidance alike of the student, the college, and the Examining Board, and places the main condition for admission to an examination, not on the possession of a diploma from some supposed reputable medical college, but on proofs of having actually devoted at least three years to the study of medicine, in institutions having the necessary facilities for imparting instruction, both theoretical and practical.

This relieves the Examining Board from the delicate and doubtful work of legislating or making rules as to what shall constitute a reputable medical college, and strengthens its appropriate executive function in exacting the positive requirements of the law. It would relieve the student from the pernicious question as to where he could get a college diploma the easiest and cheapest that would admit him to an examination or a license by the State Board, and confront him with the positive necessity of studying medicine at least the minimum of time necessary, and in the institutions capable of giving him the necessary facilities for prosecuting his important work.

It would also strongly discourage the multiplication of medical colleges in every town where six or seven ambitious members of the profession might desire to form a joint stock company, incorporate themselves under some general incorporation law, and thereby establish a so-called "legal medical college," whether they had at command any facilities for either clinical or laboratory work, or not.

If our much aggrieved correspondent in West Virginia will stop long enough to examine the bearing of the suggestions we have made, we think he will be constrained to admit, that the adoption of the amendments we have proposed would add very much to the practical value and efficiency of the law proposed for the great State of Ohio.

We do not think the condition of the profession in that State is so desperately bad that it is necessary to enact at once a very imperfect law, when further temperate, candid discussion might result in framing a much better one. It must be remembered, however, that our suggestions are not made for the purpose of opposing the enactment of any particular law in Ohio or elsewhere, but rather to direct attention to the correct principles on which all such legislation should be founded.

NO CURE NO PAY—A JUST DECISION.—The *Evening Star*, of Washington, D. C., dated Oct. 24, 1884, gives the result of a case in the Circuit Court of that district, which had been brought there on appeal from a Justice's Court, against a medical pretender of that city by the name of W. H. Hale, who publishes a paper or circular called "Health and Home." The doctor had received from a colored man named Meredith $100, on a written agreement to cure the son of the latter, sick with consumption, or refund the money. In due time the son died, and Mr. Meredith brought suit in a Justice's Court to recover the money. The suit was twice tried before the Justice, and both times judgment was rendered against the Doctor for the sum which he had received. An appeal was taken to the Circuit Court, Judge Hagner presiding. After hearing the evidence on both sides, and examining the written agreement, the Judge promptly affirmed the judgment obtained against the Doctor in the court below.

CHOLERA.—During the past week the cholera epidemic has continued in Paris, but with some diminution in the number and severity of the attacks. Dispatches from Paris of the 17th and 18th of November, indicate an average of about forty deaths per day.

DR. DONALD MCLEAN'S case of nephrectomy and double ovariotomy, to which we alluded last week, has continued to progress favorably and is now considered convalescent. A full history of the case is promised for the JOURNAL in due time.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

Regular semi-monthly meeting of November 10, 1884.

A large attendance of members and visitors were present.

The following recent cases in the surgical practice of Dr. Edmund Andrews are of interest, because of the numerous unsettled questions which cluster around the operations referred to :

The first two cases instanced, viz: gastrostomy, which by way of preface was stated by the author to be a barbarous word—an etymological blunder so far as literary usages are concerned, composed partly of Greek and partly of Latin. The "philological monstrosity" being apparently an attempt by its author to enlarge the word gastrotomy, which literally signifies stomach-cutting, and by the addition of a syllable to signify a mouth, so as to make the compound mean a cutting of the stomach to make a mouth—literally a stomach-mouth-cutting. The writer dilated further upon the word relative to its derivation, meaning, etc., and closed by saying that the word should be gastrostomaty, and even then there would be nothing left in the compound to signify the cutting; therefore to express the full meaning of stomach-mouth-cutting would require the form gastro-stomatomy, a term whose length and harshness of sound is sufficient for its condemnation. Suffice it to say, euphony in sound and scholarly composition, are two important requisites which are often ignored by skilled surgical authors as well as by those of pedantic pretensions. The following is a brief synopsis of the balance of the paper:

Case I. was a little girl, aged six years, who swallowed some concentrated lye several months previously, cauterizing the lower part of the œsophagus and gradually inducing a stricture. Dr. E. P. Cook, of Mendota, Ill., dilated the stricture, after which the child was sent home greatly improved. After leaving his care she relapsed. She was then placed in care of the writer. Upon her arrival it was ascertained that she had been unable to swallow anything for a number of days. Dilatation was essayed, and the patient improved for a time, regaining a partial power of swallowing liquid food. However, it was soon preceived that the advantage thus gained could not be maintained, and after faithful trial it became evident that the little one was gradually starving. So-called gastrostomy was then performed [The surgeon insisted, however, in his remarks that gastrotomy is the more scholarly term.—Ed.] in a room which had been sprayed for an hour with carbolic acid, but the spray was not permitted to touch the peritonæum. The usual incision was made in the hypochondrium from the xiphoid cartilage downward and to the patient's left. The colon was found partly in the way, but it was easily pushed downward. The stomach was then drawn out with long-toothed forceps, the viscus was identified by the relations of the gastro-epiploica vein, and secured to the abdominal wall by a long suture on each side. As starvation was feared, the stomach was opened at once, and its edges sewed closely to the skin all around the incision. There was a good deal of shock, but reaction occurred and union by first intention followed without difficulty and with no peritonitis. Peptonized food was regularly inserted, and on inspection was found perfectly digested, except when meat was used. This, whether raw or cooked, would be ejected from the wound unchanged even when retained 24 hours. For some days the patient improved, but it soon became evident that most of the food though digested did not pass through the pylorus. It seemed that this orifice of the stomach required a little pressure to unfold it, and that whenever the stomach contracted for the purpose, the chyme escaped by the fistula into the dressings, and did not pass on into the intestines. A rubber pad tight enough to stop the outflow could not be tolerated. A soft rubber tube with a flange and valve was substituted, in which the inner disc could be adjusted to the inner wall of the stomach. Then by clamping the tube outside of the outer disc to the wall of the abdomen a perfect valve was obtained, which prevented leakage. The effect of the inner disc on the walls of the stomach was feared at first, but it produced no perceptible irritation. The opening in the stomach was purposely made pretty large, the surgeon hoping at a future time to introduce a finger upward into the lower end of the œsophagus, and then by pushing down upon it, would succeed in restoring the natural passage. As above stated, the valve retained the food perfectly, and the patient took an abundance, and even learned to know when she was hungry and to call for her meals. The improvement was but temporary, however, and she began slowly to fail without obvious cause. The power of assimilation seemed to exhaust itself, and she constantly grew weaker. At the 35th day after the operation, it became evident that she was at about the end of her life. The last 24 hours were accompanied by an obscure fever.

Case II.—An adult male patient. Six months ago he swallowed some caustic ammonia, producing a contracting ulcer of the lower part of the œsophagus. In September last he placed himself in the care of the writer, having been unable to swallow anything for some days. By a persistent use of bougies the stricture was dilated and the power to swallow liquid food restored. He then returned home, having learned to introduce the bougie himself. In time, however, he lost the art of passing the instrument, and in October returned, in the same condition as before. Diligent trials to dilate the stricture a second time gained only a slight temporary power of passing small quantities of liquids a day or two at a time, and within a week or so it was perceived that his progress was downward and that he was slowly starving; moreover the points of the bougie seemed to be creating a local inflammation in the right lung, as if they were making a false passage in that direction; to continue their use, therefore, was not deemed judicious and they were accordingly discontinued, and an operation was decided upon at once and not allow the patient to become weaker. The operation

was the same as in the former case except that the opening was smaller. The same difficulty of regurgitation of the food occurred and was controlled by a similar valve. The patient is now doing well and bids fair to recover, and at time of reading the paper, thirty-two days since the operation, is improving nicely. The plan pursued by Mr. Howse, of London, and those of other surgeons was dwelt on to some extent, with their advantages, disadvantages, etc., etc. The operation should be done with extreme caution. Regarding the statistics of this operation, this is not very cheerful. Of 207 recorded cases, forty were for cicatricial stricture of the œsophagus like those just recited. Of these forty, twenty-one died. Yet, when no other hope of life or relief is offered, an operation which gives them one chance in two is a great benefit.

Excision of the rectum, of which the author cited two cases that he at present has under treatment, as follows:

Case I. was epithelioma, not reaching down to the verge of the anus. In operating, the entire external sphincter was saved, the incision was carried from an inch in front of the anus back to the coccyx, opening the anus anteroposteriorily and cutting off the gut just above the verge. After dissecting it upward a little and tying numerous vessels, the rectum was separated from the pelvic chamber mainly with the finger and the *tube* divided about three inches upward, just above the top of the cancer. There was no shock and not much subsequent pain or inflammation.

The second case was almost exactly a repetition of the first, except that the verge of the anus was involved in the disease, and consequently was dissected out with the rest. Both patients are doing well and are exceedingly comfortable, but it is too early to state whether there will be any return of the disease.

Statistics: The statistics are much like those of epithelioma elsewhere. Billroth, of Vienna, thinks he permanently saves about one-third of the cases. Other authors were cited, and lastly, of 608 cases collected, 140 died of the operation, and of one hundred of those who survived the operation whose accounts were traced up, thirty-one were doing well at the end of the year, and seventeen were alive and well with no return at the end of three years.

LITHOLOPAXY.

Dr. Andrews has operated twenty-three times, with one death. He is confident that the plan he pursues, of keeping the nerves of the bladder benumbed during the operation by filling it with carbolized water, tends powerfully to prevent both shock and inflammation. It is worthy of inquiry, said he, whether the remarkable local anæsthetizing properties of the new agent, cocaine, would not enable us to operate without ether and without producing shock. * *

A new instrument for operating on varicocele was the next topic discussed by the writer. Operations for destroying the veins in varicocele have produced occasionally death, and in other cases resulted in neuralgic scrotum with or without atrophy of the testicle. Many surgeons have followed the lead of Prof. Frank Hamilton in preferring Sir Astley Cooper's plan of shortening the scrotum sufficiently to make it its own suspensory bag. This operation is vexatious, because the imperfect character of the old-fashioned adhesive plasters rendered it difficult to support the sutures sufficiently to secure union by first intention. Now that we have the rubber plaster, which never lets go its grip, we can cut the scrotum very short, and still hold the wound firmly together and secure a triumphant success. Sundry clamps have been invented to hold the skin of the scrotum firmly while the surgeon cut it off and sewed it up. The evil of the clamp is that it compresses the arteries, so that after cutting away the pouch, the surgeon is unable to find and ligate the vessels. If he sews up the wound without attending to this point, experience shows that after the clamp is removed hæmorrhage often takes place inside the scrotum, distending it with clot and forcing open the wound, thus delaying the cure. To meet this difficulty the author has devised a kind of varicocele bow, which he exhibited and described as follows: It consists of two curved parallel bows connected at the ends and enclosing a slot three-eights of an inch wide between them. Twelve holes are drilled through the bars of a size to admit ordinary pins. The surgeon draws the scrotum through the slot (having the concave border toward the base of the scrotum) to such a distance as he deems sufficient, secures it there by inserting one by one as many pins as he finds necessary to hold the pouch securely. He then cuts off the scrotum outside the convex border of the bars. As the scrotum is not pinched by the instrument, the blood spouts freely, especially from the artery at the raphe. The operator can carefully and deliberately secure every bleeding point. This being accomplished, he sews the cut edges together, and then drawing out the pins removes the bow and applies his plasters. The neatness and despatch of the operation are thus greatly enhanced.

An interesting and appropriate paper, "The Fourth Annual Report of the Shan-Tung Dispensary and Hospital at P'ang-Chia-Chuang," prepared by Dr. Henry D. Porter, who was for a number of years a resident missionary in China, was read by Dr. John H. Chew.

The report was an able one, and contained the essayist's views and experiences in Oriental diseases. The address also of the gentleman delivering it was keenly appreciated, by the expression from the Society in the form of a vote of thanks. But for want of space we are obliged to forego its publication at this time.

In behalf of the Committee on *National Sanitation*, Dr. John Bartlett presented the following report:

Mr. President: The committee appointed at the meeting of this Society, Sept. 15, 1884, to consider and report upon a series of resolutions presented by Dr. Liston H. Montgomery, having reference to *National sanitary* matters, respectfully report the following preamble and resolutions as suitable to be adopted.

WHEREAS, Experience has firmly established the fact that the ravages of certain infectious and conta-

gious diseases may be in good measure prevented, controlled or arrested by the enforcement of suitable sanitary regulations, and

WHEREAS, The United States is constantly exposed to the importation of disease from foreign countries, and, because of the facility and rapidity of inter-state transit to the rapid spread of infection once finding lodgment on our borders; and

WHEREAS, This exposure, because of the prevalence of cholera in Europe just now, is unusually great, and

WHEREAS, The facts are that matters of sanitation are in some of the States of this Union entirely neglected, while in others they are simply taken cognizance of by the appointments of Boards of Health, in their functions, advisory only, and not vested with powers of authorative action; and

WHEREAS, Either of these State Boards of Health as now constituted may prove derelect or inefficient in its duties, or act without concert with, or even in antagonism to the Boards of other States, and

WHEREAS, The exigencies occasioned by the appearance of violent epidemics, demand organized means for the prompt recognition of the outbreak of disease, and vested authority, limited in its area, by the boundaries of country only, to take such immediate steps in matters of protection, as vaccination, isolation, quarantine, etc., as experience has taught to be useful; and

WHEREAS, No National authority in sanitary matters now exists, therefore

Resolved, That it is the judgment of the Chicago Medical Society that the sanitary interests of the United States demand the establishment of a National Health authority, which shall have for its main functions, the detection of pestilential and epidemic diseases, and the enforcement, where necessary, of sanitary regulations tending to prevent, to abate, or to suppress them.

Resolved, That as a step toward the consummation of the idea suggested in the foregoing resolution, a committee of three be appointed by this society to collate facts, tending to show the usefulness, and necessity of a National sanitary organization, and to compile the same in such form as may be available for disseminating information upon, and creating an interest in National sanitary legislation.

Resolved, That the said committee be empowered and instructed to urge the importance of national sanitary legislation upon the attention of the congressional delegation from Illinois, and fittingly to present the subject to the Representatives of the People in both Houses of Congress.

All of which is respectfully submitted,

O. C. DE WOLF, *Chairman.*
R. E. STARKWEATHER,
L. H. MONTGOMERY,
JOHN BARTLETT,
J. H. ETHERIDGE,
A. R. JACKSON,
J. H. HOLLISTER,
} Committee.

Upon motion duly seconded, the resolutions were voted for "seriatim," and were unanimously carried.

Then another motion that the suggestions embodied therein be adopted, also unanimously prevailed, and Drs. John Bartlett, Ralph E. Starkweather and John H. Hollister were appointed members of the committee.

The following interesting papers were then read by Drs. Boerne Bettman, and Jefferson Bettman.[1] And at a late hour, a motion prevailed that the society do now adjourn.

"MURIATE OF COCAINE AS A LOCAL ANÆSTHETIC," BY DR. BŒRNE BETTMAN, M.D., CHICAGO.

Hardly two months have passed since the introduction of this valuable adjunct to medical science. Already many clinical and physiological observations have been made and noted down in our medical archives. Glowing indeed are the descriptions sent to us from the East of the wonderful effects of this drug. To Dr. Noyes must be assigned the honor of having first called the attention of American physicians to this new anæsthetic. In his letter from Kruznach, dated September 19, he briefly reviews the work performed by the Ophthalmological Congress in Heidelberg, and devotes particular attention to the interesting experiments performed by Prof. Becker in the presence of the assembly with the muriate of cocaine. These remarks relating to the new discovery were the first intimation of the existence of so powerful an anæsthetic and of so great a boon to suffering humanity.

The next number of the New York *Medical Record*[2] contains short articles by Drs. C. R. Agnew, W. Oliver Moore, and James L. Minor, relating to the matter in question.

These gentlemen report eight cases treated and operated on under the effects of this drug. The results elicited appear magical, and have called forth unbounded enthusiasm. The publications of Drs. Gruening[3] and Claiborne demonstrated the wide range of utility of the article. Tenotomies, iridectomies and cataract operations have been made after instilling a few drops of a 2 per cent. solution of cocaine into the eye, without the slightest discomfort to the patient. A case of hypertrophic catarrh is also mentioned, where the galvano-cautery was applied to the inner part of the anæsthetized nose without pain. Dr. Knapp's experiments relating to the physiological action of the drug, demonstrate its benumbing effects on the eye, rectum, urethra, and other mucous membranes of the body. My friend, Dr. A. W. Harlan, has in several instances filled teeth, which were rendered insensible to touch by a drop of the cocaine. Dr. Polk has used it successfully in two operations upon the cervix uteri.[4] It appears that Dr. Koller, the student of Vienna who discovered the application of muriate of cocaine to the eye, became aware of its anæsthetic qualities from

[1] For paper of Jefferson Bettman, M.D. See Original Articles in nex number of JOURNAL.
[2] *Medical Record*, Oct. 18, 1884.
[3] New York *Medical Journal*, Nov. 7, 1884.
[4] *Medical Record*, Nov. 1, 84.

seeing it applied to the larynx by German specialists to deaden the sensibility of the vocal cords.

The remedy is the alkaloid, the active principle of the leaves of erythroxylon coca, a shrub growing extensively in South America. I succeeded in obtaining a few grains of the highly prized drug, which I used with excellent results in the following cases. In order to acquaint myself with the action of the remedy, I first tried it on the left eye of my brother; also on my right eye. A short account of my observations may serve as an introduction to the clinical data:

I instilled two drops of a 4 per cent. solution of muriate of cocaine into the left eye of my brother, Dr. Jefferson Bettman. After a few moments he remarked that the eyelids felt stiff. In two minutes complete anæsthesia had set in. I now was able to touch the inner surface of the lids, the cornea, and other parts of the globe, with a probe, brush and finger, without giving him the slightest pain; in fact the only intimation of these manipulations was revealed to him by the sense of sight.

His myopia in this eye is equal to 2.5 dioptrus, with a glass of this strength $V=\frac{6}{6}$. Sensibility began to return at the end of ten minutes, application of a probe, brush or finger to the eye, now caused him to wink; though producing but slight discomfort. Complete sensibility returned only after 15 minutes. The pupil began to dilate at the expiration of 16 minutes, the mydriatic effects of two drops of cocaine was moderate.

Dilatation gradually increased, at 12 o'clock, two hours after the application, the mydriasis was middling. These experiments were repeated the next day, the effects were more pronounced and lasting on repeated application of the remedy. Four drops produced complete, ad maximum dilatation in 25 minutes, still the iris responded promptly to light. The pupil did not regain its normal size until the next day, 24 hours later. The range of accommodation was not perceptibly influenced.

At five minutes past two in the afternoon two drops of cocaine were put into my right eye. Three minutes later sensibility was decidedly diminished, two drops more were instilled at ten minutes past two, and at 2:14 two more drops. A quarter of an hour after the first instillation, the eye was in a complete anæsthetic condition; pressure of a probe against the cornea was not felt, neither did the application of a brush, pin or forceps cause the slightest annoyance. Dilatation of the pupil became perceptible after a quarter of an hour. My eye is emmetropic, the weakest convex glass + 72, produces a cloudiness of vision. After the eye had been rendered insensible to touch, my distant range of vision remained the same, + 72, producing slight obscuration of sight. My near point had receded from 4 inches to 12. It required a convex glass of 14 to enable me to read Snellen 0.5, at 4 inches from the right eye. This I could do with the left eye unaided. At the expiration of half an hour my pupil was dilated almost ad maximum, sensibility now began to decrease, the benumbing effect of the remedy had entirely passed away in three-quarters of an hour.

The Mydriasis lasted eight hours.

The outer surface of the right lower lid was also rendered insensible to touch, the pricking of a pin not being noticeable on this lid, while it was painfully evident when applied to the left lower lid.

CASE I.—Oloff D., æt 33, on examination was found to be hypermetropic 2.d. in the right eye, 1.5.d. left eye; there was also a chronic dacyocystitis and stricture low down in the nasal duct. Before attempting the passage of a Bowman's Probe I instilled several drops of 4 per cent. sol. of the muriate of cocaine. In not quite two minutes a probe was pressed against the cornea and not felt by the patient. The pupil dilated ad maximum in ten minutes. Weber's knife was introduced into the canaliculus, shoved forward into the sac and the duct slit open. The last act of the operation caused some pain, while the first steps passed unnoticed. I now injected by means of an Anel's syringe, several drops of muriate of cocaine through the sac into the nose. At the end of about five minutes I passed the probe and forced the stricture which was very firm. The pain was but trifling, 75 per cent. less than that experienced five years ago, when he had been subjected to a similar operation. A stronger glass was rejected. The anæsthesia began to decrease in twelve minutes, when he left my office a few minutes later, the parts had returned almost to their normal state. The accomodation was decidedly affected in the near point having receded several inches.

CASE II.—A policeman came to me with a foreign body embedded in the cornea. The eye was very sensitive, the piece of steel having been in situ three days. Two drops of cocaine produced complete insensibility of the eye in two minutes. The digging out of the mote with a spud was entirely painless. The drops of cocaine mixed with tears ran down over the cheek into his mouth and produced a numbness of that side of the tongue bathed by the fluid.

The application of this remedy in other parts of the body is equally beneficial.

CASE III.—Mr. M. consulted me for a terrible ear ache, due to an Otitis Media Purulenta Acuta. He was suffering great pain and would barely permit the introduction of a cotton holder into the outer meatus. The introduction of two drops of cocaine was followed by almost immediate cessation of pain. I syringed the ear, cleansed it thoroughly, several times I purposely touched the M. T. with the probe and he felt absolutely nothing.

CASE V.—The most striking results I have thus far obtained were in the case of Mrs. T., on whom I operated for cataract November 2d. The instillation of several drops of cocaine, repeated every few moments, produced in ten minutes complete anæsthesia. The patient was placed in bed, a speculum introduced between the lids. This the patient felt slightly.

The eye was now grasped with a fixation forceps. which I afterward found was entirely unnecessary, since she held admirably well. The corneal section was made without the patient being aware of the fact. She at least did not make it known either by motion of the eye or a cry of pain. The only step in the operation which caused the slightest pain was excision

of the iris. At this stage of the operation when questioned as to the sensation, she remarked it felt as if a pin was pricking her. The cataract was hypermature. The lens was expelled with some difficulty. She expressed herself highly pleased with the action of the drug, assuring me again and again that with the exception of the pricking pain just mentioned she felt absolutely nothing. She had been advised years ago to have the eye operated on, but owing to the dread of any surgical interference and the pain, she had delayed it so long.

In reviewing the above we may tabulate the physiological action and therapeutical effects as follows:

1. It is a powerful local anæsthetic not penetrating in nature, rapid in its effects, which, however, are only temporary.

2. It is a mydriatic, the effect of which is regulated by the strength of the solution.

3. It produces paralysis of the ciliary muscle, the near point receding from the eye. Distant vision is not influenced.

4. By virtue of its benumbing powers it may be classified as an anodyne.

LISTON H. MONTGOMERY,
Secretary.

STATE MEDICINE.

STATE BOARDS OF EXAMINERS.

WHEELING, W. VA., November 5, 1884.

N. S. DAVIS, M.D., EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

My Dear Doctor:—I have read your editorial on "State Boards of Medical Examiners" in last Saturday's JOURNAL with inexpressible sorrow, for the reason that your words and opinion on the subject, however untempered and erroneous in argument, will be instantly caught up—because of your high professional position and great influence—and effectively used by cunning quacks to antagonize and defeat the passage of the proposed law in Ohio to protect the people of that State against ignorance and villainy in medical practice.

Within the past three years Ohio has become a sort of *penal colony* for medical quacks who have been driven from Illinois and West Virginia by the operation of wise laws in these two States for the protection and safety of the people against ignorant, incompetent, and unprincipled persons calling themselves physicians. Indeed, to such an extent has Ohio been invaded by pretenders in medicine and surgery, that at present the State is almost overrun by that class of doctors, and the medical profession proper is thereby accordingly disgraced. Yet this large army of quacks are trembling in their boots from fear that the next Legislature will deprive them of their present liberty to trifle with human life and the public health.

How they will thank you for coming so unexpectedly and influentially to their aid in opposing the deliberate judgment and earnest, heartfelt wish of the Fellows of the State Medical Society! They will carry in their hearts and on their lips your comforting opinion that "to establish State Boards of Examiners, and confer on such Boards unlimited power to determine what shall constitute a proper medical education, * * * is not only contrary to the genius of our governments, State and National, but is putting into the hands of a few men a power which they may wisely and honestly exercise in such a way as to elevate the standard of medical education, * * * or they can just as readily wield it in such a way as to lower that standard, and foster both ignorance and oppression."

But admitting the possibility of the appointment of unworthy and bad men, is that a sufficient argument to discourage the establishment of such Boards? May not the highest office in the national government, as well as within the gift of the State, be abused and disgraced by an unfaithful and incompetent officer? Are not such examples found both in Church and State? And should organized government, therefore, be opposed because of the possibility that bad rulers may endanger the liberties of the people? Should holy religion be decried because of the unfaithfulness sometimes of priests and bishops?

Your argument, to have point, should have given an example of the abuse of power by an Examining Board, and the community in which such "ignorance and oppression" have lowered the standard of the medical profession.

Can you for a moment doubt the good effect of the law regulating the practice of medicine in your own State—Illinois, its success as a means of restraining quackery and encouraging higher medical education? Can you question the wisdom of the Legislature in passing the law? Also the learning and justice of the decision of the Supreme Court in maintaining the constitutionality and validity of the Medical Practice Act? Can you doubt the higher standing of the medical colleges in the State of Illinois since the establishment of the State Board of Health? And can you deny that the *esprit de corps* of the medical profession in Illinois has been greatly improved by the labors of the State Board of Medical Examiners?

If you answer "Yes" to these questions, then let me beg you to turn your attention to West Virginia and compare the present rapidly rising standard of medical education under the influence of the statute regulating the Practice of Medicine and Surgery, with the situation four years ago, when any ignoramus could don the name Doctor and prey without hindrance upon the lives and property of the people; when the *passport* of such disgraceful diploma mills as the *Physio-Eclectic Medical College of Ohio*, run by Nicely, Van Sickle & Co., at Cincinnati (now, the *American Eclectic Medical College of Cincinnati, Ohio*), could not be questioned; and when traveling medical-showmen were permitted to beguile the people and carry off their substance,—I say compare the days of such unlicensed medical practice with the present orderly registration of those legally qualified to practice, and you will find many complete and convincing answers to your surprising and, I think, pernicious criticism on "State Boards of Medical Examiners," as well as to your vigorous protest against

the passage of laws that hinder the liberties of impostors in medicine.

In neither of the States having Boards charged with the duty and power to regulate medical practice has there been shown the slightest excuse for your seeming *dread* of official discrimination against "any sect" or so-called school in medicine. Like the sciences of mathematics and philosophy, anatomy, physiology, chemistry and pathology are precisely the same in all languages and in all colleges or schools of medicine; and it is the *quantity* of correct knowledge of these and other elementary branches that fits a man or woman for the office of physician and surgeon, and entitles him or her to legal protection—not that he is "regular" "homœopathic," or "eclectic" in his practice or treatment of diseases.

But you may challenge my presumption in demurring to your utterances disfavoring the passage of the proposed Medical Bill in Ohio. If so, let me assure you of West Virginia's hearty sympathy with Ohio in this matter. We are gathering every day good and substantial fruits from the operation of the law regulating medical practice, and earnestly desire that our professional neighbors "o' the border" shall be saved from the continued shame and mortification of witnessing the coming to their midst of quacks who have been denied a resting-place in West Virginia.

Last week the Supreme Court of Appeals of West Virginia placed the State Board of Health on high legal ground; and thus our labors in medical registration have not been in vain. In a case brought up from an inferior court by a man who had been refused registration on the basis of a diploma from *The American Eclectic Medical College of Cincinnati, Ohio*, the Court unanimously decided: 1st, that the law regulating the Practice of Medicine and Surgery is constitutional and valid; and, 2d, that the question of the reputability of a medical college is to be decided by the State Board of Health—not by the courts.

And now, if I have shown much earnestness in my effort to parry your hard blow at State Boards of Medical Examiners, you must charge it to my fear that your opinion may do great harm in Ohio, and indeed wheresoever an effort shall be made to secure similar legislation. But I beg you to believe me none the less Your sincere friend,

JAMES E. REEVES.

BOOK REVIEWS.

DISEASES OF THE NOSE. By CLINTON WAGNER, M.D. New York: Bermingham & Company. Cloth. 247 pages. Price, $2.50.

After introductory chapters on the anatomy and physiology of the olfactory apparatus, the author fully discusses the diagnosis and treatment of the various diseases affecting its several parts. Respecting nasopharyngeal polypi of a malignant nature he quite properly recommends radical treatment. This requires a formidable operation in order to sufficiently expose the growth for complete removal. It is imperatively demanded at an early day as the natural termination of the disease is death, and delay simply increases the difficulty of the operation. The book contains some very good illustrations and the report of numerous interesting cases. C. E. W.

VISCERAL NEUROSES. By T. CLIFFORD ALLBUTT, M.A., M.D. P. Blakiston, Son & Co. Philadelphia: 1884. Cloth, 103 pages. Price, $1.50.

This brilliant little book contains three lectures delivered at the Royal College of Physicians in March, 1883.

The author in his preface calls attention to the humbuggery of modern specialists, and in his introductory lecture makes a most telling attack upon the bad practice of gynæcologists.

The second and third lectures consider respectively gastralgia and enteralgia, differentiating, these affections from hysteria, a distinction often lost sight of.

His plan of treatment is based upon the general principle that neuralgia is the result of an exhaustion of the general vitality of the patient.

The work is written in charming style, illustrated by many cases from the author's practice, and published in a good type; thus it is easily read, entertaining and instructive. C. E. W.

MISCELLANEOUS.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required, to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY DURING THE WEEK ENDING NOVEMBER 15, 1884.

Beardsley, Grov. S., promoted to the grade of Medical Inspector, April 24, 1884, Nov. 14, 1884.

Heffenger, A. C., Past Assistant Surgeon, duty at Portsmouth, N. H., continues till Dec. 12, 1885, Nov. 11, 1884.

Wieber, F. W. F., Assistant Surgeon, to the receiving ship "Vermont," at New York, Nov. 12, 1884.

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ORIGINAL ARTICLES.

REPORT OF A CASE OF CONGENITAL ENCEPHALOCELE.

BY JOHN H. DUNCAN, M.D., KANSAS CITY, MO.

Read in Section of Diseases of Children of the American Medical Association, May, 1884.

The comparative infrequency of encephalocele as a congenital malformation, the caution advised by authors as regards operative procedures for it, and the gratifying results which I have recently had in the management of a case, lead me to make this report. It was to me a very interesting case and one which I followed closely, though I regret, that owing to the bad hygienic surroundings, I did not watch it as assiduously as I should. Before presenting the case, I ask your indulgence for a few moments, that I may review cursorily the history of encephalocele, for it may be of interest to you as it certainly has been instructive to me.

The writers of the latter part of the eighteenth and beginning of the nineteenth centuries spoke of it only as "Hernia Cerebri" and "Fungus Cerebri." It is a protrusion of the brain tissue from the cranial cavity, generally in the course of a suture or fontanelle, when congenital, and in other situations when traumatic. Its size varies and it increases gradually, becoming sometimes very large. Gross reports a case in which the tumor was as large as the child's head. There are then two varieties of encephalocele; the one a congenital malformation, the other, traumatic. In this paper, we only consider the former. Being situated in the course of the sutures and fontanelles, it was supposed by the older writers to be due to deficient ossification, which is partially correct, though the real cause certainly is within the cranial cavity and associated oftentimes with ulceration of the dura mater at the point of the tumor as well as sometimes with cerebritis. In by far the great majority of cases reported the integument was perfect but in a few even that was wanting. Dr. Burrows, in 1810, describes a case of this kind as follows: "The whole of the forehead, summit, and greater part of the occiput were deficient, and in lieu of them a substance projected of a light mulberry color and of the mushroom form, except that it was proportionately broader. From the deficiency of bone the eyes appeared to project much more than usual. The child lived six days without even taking sustenance or having an evacuation." Bryant, in his work, refers to a case, by Lichtenberg, in which the tumor was hanging from the child's mouth, through an opening in front of the "Sella Turcica." Cooper reports a case which lived 33 years without any marked change in the intellect. Prescott Hewett, in "Holme's System of Surgery," reports two cases in which the cerebral structure protruded from the anterior nares and external auditory meatus, both of which proved fatal. The same writer also presents two other cases, one occurring at St. Bartholomew's Hospital, the other taken from the *American Journal of Medical Science* for 1859, wherein the brain tissue appeared at the above mentioned situations, and which ended in recovery. Spring, in 1853, mentions a case in which the encephalocele involved the entire left hemisphere: patient recovered and lived eleven years. Laurence has recorded seventy-nine cases, only six of which reached adult life. The cases to which I have just referred are certainly remarkable ones and not by any means typical cases of congenital encephalocele. Ordinarily the tumor is either in the occipital region or at the anterior fontanelle. It pulsates, bleeds freely if irritated, grows gradually if it is progressive, creates primarily very little if any general disturbance, but secondarily stupor, vomiting, etc.; especially does pressure upon it produce momentary coma and cerebral disturbance. Patients may die from asthenia or cerebral hæmorrhage. Bryant says it may be mistaken for a simple cyst, and unless positive as to its character we had better leave the case to nature.

Various methods of treatment have been recommended from time to time, among which are: (1) compression, (2) ligation, (3) complete and immediate excision.

In comparing the treatment of the surgeon of today with that of those of 75 or 100 years ago, I find that we are more prone to trust to nature for the excision of the tumor by ossification, than we are to operative means. I suppose this is correct as a rule, but I am satisfied that it will not suffice in all cases. On the other hand, the earlier surgeons favored more the knife, but I was surprised to learn that among them only one, Van Swietan, recommended and practiced with success in several cases *ligation*. As to compression by zinc plates, caps, etc., which has been recommended, they have been found to be only of slight value, and of course utterly valueless and harmful after the tumor has become larger than the

opening through which it came. From my investigations of the subject and my experience in this one case, I would advise trusting to nature to check the growth of the tumor or to remove it by closing the fontanelle or sutures, and when she fails the removal of it by ligations. This simple operation is safer than, and certainly just as effective as the knife. While, however, the removal of an encephalocele by excision is generally accompanied by copious and maybe fatal hæmorrhage, yet Quesnoy reports a case in which the patient tore off the protruded mass himself, and the parts healed without any bad results.

I will now report the case I have recently seen.

Willis M., colored, born August 28, 1882. When about seven (7) weeks old he was brought to me by his mother. I found a tumor about ¾ of an inch in diameter, situated immediately over the anterior fontanelle. This mass was covered by integument, was not smooth but regularly grooved, moved with each cardiac pulsation and even at this time had the characteristics of brain tissue. The following was obtained from the mother: She is a short, muscular, healthy woman, 40 years old and weighs about 200 pounds. She is the mother of 12 children, all of them with the exception of this one, without any deformity. She says that the week just previous to her last labor she was daily engaged in carrying coal up several flights of stairs; also that her labor lasted, to use her expression, "longer than with any three of her other children and the suffering much greater." I questioned her closely on this point, and from her repeated statements on various occasions, I believe labor lasted from twenty-four to thirty hours. She says that as soon as she looked at the child, she saw a small lump about the size of a bean on the fore part of the head, bluish in color and smooth. However, this lump grew, and as it grew it lost its smoothness and blueness, until when I saw it seven (7) weeks after birth it was as I have described above. I presented the case to my class and it was also examined by various members of the medical society of the county. Before interfering with it and as the child was not suffering in any way perceptible from it, I decided to follow the advice of surgeons and wait and see what nature would do in the case I, however, gave the mother a simple ointment to allay any irritation and ordered that the child be returned to me every two weeks and oftener if necessary.

This course was followed until about the middle of December following, during which time the tumor was gradually but very slowly increasing in size. Now there was slight nausea at times, some emaciation and some stupor. Two days after the last regular visit which was December 11, the mother, very much excited, returned with the child. And I must say, when she uncovered its head and I saw the condition of affairs, I was, until she gave a history of the last two (2) days, surprised at its size and appearances. The tumor now was as large as an ordinary orange and in short it was 5 or 6 times larger than when I saw it only two days before. Brain tissue was now distinctly marked, no indications of hydrencephalocele; pedicle filling up the opening in the skull and the mass moving with each pulsation of the heart. The child now was extremely nauseated, even throwing up its milk. I think I can give a rational explanation of this sudden enlargement:

During the two days that the tumor enlarged so rapidly, the mother was compelled to be absent from the child the greater part of both days. The grandmother was left in charge, and she informed me that during that time the child cried a great deal and very violently, and that during the fits of crying she could plainly see the tumor getting larger, or, to use her expression, "see the lump filling out."

I concluded I had given nature a fair trial, and decided to remove the mass. It was now bleeding freely when touched, and fearing hæmorrhage, I ligated it. From the moment I ligated it, all nausea and vomiting ceased. I re-applied the ligature about Jan. 1st and 15th, and had the satisfaction of learning from the mother, in the latter part of January, that the tumor had dropped off. I visited the child and found the proximal end completely healed, thus cutting off all communication with the cranial cavity through the anterior fontanelle. I saw the child last February, or one year after the removal of the tumor; there were no indications of its reappearance, and physically and mentally it was as well developed as children generally are at its age.

REPORT ON THE DISEASES OF THE EAR

IN LOCOMOTIVE AND OTHER ENGINEERS, FIREMEN AND CONDUCTORS, WHICH MAY ENDANGER THE LIVES OF THE TRAVELING PUBLIC.

BY LAURENCE TURNBULL, M. D., PHILADELPHIA,

Aural Surgeon to Jefferson Medical College Hospital, and Instructor in Otology Post-Graduate Course, Jefferson Medical College, Philadelphia.

Read in Section of Ophthalmology, Otology and Laryngology of the American Medical Association, May, 1884.

In 1875[1] we made a series of experiments on the perception of "Musical Tones by the Human Ear."

Before giving the writer's experiments in detail it will be proper to state the results obtained by other observers. The discrepancy, in our opinion, can only be accounted for in three ways. First, variations in the sound conducting portion of the auditory apparatus; second, defect, original or acquired, in the perceptive portion, and third, want of cultivation.

"Savart" fixed the lowest limit of the human ear for musical sounds at eight complete vibrations a second, by means of a toothed wheel and an associated counter, and the highest limit at twenty-four thousand vibrations. "Helmholtz" has fixed the lowest limit at sixteen vibrations and the highest at thirty-eight thousand. "Vierordt" gives the highest tone as forty-eight thousand, and "Desprets" as seventy-five thousand. The following table contains a series of

[1] Proceedings Am. Ass. Adv. Sci., 1875.

experiments which were found to vary with the age and condition of the hearing apparatus of the individual.

FIRST SERIES OF EXPERIMENTS.

Age.	Distance.	No. of Vibrations.
15	35 feet	40,000
18	" "	40,000
21	" "	35,000
25	" "	30,000
30	" "	25,000
50	" "	25,000
60	" "	20,000

In only one instance in a trained musical ear were sixty thousand vibrations in a second heard.

In May, 1879, I called the attention of the medical profession to the fact that I had found a number of persons who were naturally insensible to sounds above a certain pitch, just as it has been ascertained that there are individuals who cannot distinguish between different colors or certain rays of light of high refractive power.

Accidents have occurred to the public from such causes when persons so defective have had charge of the signals or sounding apparatus, such as are usually employed in case of danger to life.

In the following is a second series of experiments made in May, 1879. The subjects were all scientific men, either physicians, medical students or lawyers. The rods were of steel held within two inches of the ear; their temperature was about 70° F. The observations were conducted in a room remote from noise; weather cloudy and drizzling.

	Years.	Initial.	Vibrations.
From 20 to 30	22	G. H. R.	50,000
	23	A. De W.	50,000
	24	D. J.	55,000
	24	J. M.	40,000
	24	J. M. S.	35,000
	24	H. F. S.	55,000
	25	J. M B.	50,000
	26	J. E. F.	40,000
	26	A. O.	45,000
	26	H. P.	60,000
	28	I. O.	40,000
	29	J. S. T.	40,000
	29	C. M. T.	45,000
	30	F. W.	40,000
	30	J. E. W.	45,000
	30	C. S. T.	40,000
	30	W. S. L.	50,000
	30	G. A. N.	30,000
From 30 to 50	32	G. McC.	35,000
	36	J. R.	40,000
	39	W. K.	50,000
	47	J. A. M.	40,000
	48	R. M. S.	40,000
Above 50	52	E. R.	45,000
	57	L. T.	30,000

It will be seen by these and numerous other experiments which have been made by us, that the highest musical tone obtained in a normal healthy ear, not specially trained, did not exceed in any instance a fraction over forty thousand vibrations in a second. Education of the ear, to the recognition of musical tones, is as necessary as the training of the athlete to walk, run, box, row, bat or lift weights.

It was discovered that many individuals, even professional men who considered their hearing perfect, were found to be defective in one ear, either from cold or hereditation, or from sea or fresh water bathing, or from inflammation passing along the nostrils, pharynx and Eustachian tubes, to the middle ear, from what is termed an influenza, a coryza, or simple cold in the head.

Cases have been found by us where one or even both these defects have existed from birth in the same individual, that is, a person who was color-blind, also, had "no ear for music." Defective hearing was also discovered in engineers who have charge of stationary or marine engines, and also in conductors on steam trains, also on ordinary passenger cars of our city railroads. By this defective hearing the signal call with the voice or bell is not heard, and collisions have taken place, individuals been injured, and valuable lives have been lost.

The following are a few of the causes which I have noticed produce such attacks of deafness. Intense cold and exposure to cutting winds, snow and rain. The intensely shrill whistle of the locomotive near the ear, especially when in deep cuts or tunnels, or while running at high speed. The influence of long journeys, as from Edinburgh to London, causing in one case, which came under my personal observation, also inflammation of the brain. In two instances deafness was produced by a railroad trip from Philadelphia to California, producing vertigo, with roaring in the ear by the noxious influences of the dust and gases with the dry heated atmosphere during the summer months. The ears when examined were found to be filled with hard matters, particles of carbon, silica united with the epithelium and cerumen, causing irritation and inflammation by pressure, etc., on the membrane of the drum. In firemen it is noticed that the sudden change of temperature exerts a powerful influence upon the skin, in "firing up," causing excessive perspiration, and again passing into cold winds or deep depressions or tunnels, which in turn chill the body, causing disease of the nasal and respiratory organs, and extending into the Eustachian tubes causes deafness, which, if not promptly treated, becomes permanent. This disease of the ear or ears may have been originally acquired from the ordinary diseases of childhood, as scarlet fever, measles, whooping-cough or cold in the head, affecting, perhaps, only one ear. It is remarkable how long persons can get along with one deaf ear until some impairment takes place in the other, utterly unfitting them for important duties. When the deafness is caused by such employment on the railroads, where no organic change had taken place in the individual before entering upon his duties, and when the best years of a man's life have been spent in the service of the company, we would not advocate that such an individual should be thrown helpless upon the world; we would have his place changed to one of less importance, and where there would be no risk from his defective hearing. In the numerous positions on or about railroads there is found even employment for deaf men; and a discharge from active duty on part or full pension should be awarded, and would be but a small outlay in comparison with the risk of life or damages which the

company would have to pay. Another form of deafness I have noticed was in a conductor, namely, when his car was in motion he was able to hear well, but the moment it stopped his hearing became imperfect.

Owing to the profound deafness of a driver of a street railway car, a fire engine with a bell being constantly rung was not heard, and collision took place, and so great was the shock that the fore feet of the horses went through the windows of the car, and the only passenger in the car, a lady, was badly injured on the side and limbs, and her nervous system was completely shattered.

A mechanical engineer who had charge of a locomotive and subsequently a marine engine on board of a steamship, was so injured during a storm, that when he applied to be treated he could with one ear only hear the watch one-eighth of the normal distance, and with the other on close contact.

A case is also reported of a locomotive engineer who had his hearing so decreased during two years, from traveling through tunnels, that he had, while making up his own, caused a collision with another train, thus doing considerable damage.

Another case was of an engineer who had suffered from deafness of several years' standing; when his train was composed of more than twelve cars he could not hear the signal; he could only hear it four car-lengths.

On September 2d of 1880, Professor S. Moos, Heidelberg, read a paper before the second otological congress at Milan, on the diseases of locomotive engineers, firemen, etc., and stated that during the last few years he had been consulted for diseases of the ear by four locomotive engineers who had already resigned their post for other reasons, these cases had this in common that all four dated the origin of their deafness to the time when they still pursued their calling, that both ears were affected and the hearing was greatly diminished. Two of them suffered from constant subjective noises in both ears, one in one ear only, while the fourth heard no subjective noises at all. All four cases could be classified under the heading of sclerosed form of catarrh of middle ear. This fact led him to turn particular attention to the subject in question, especially of similar observations which he has since made of locomotive engineers and firemen—these being still in active duty had brought so vividly before him the danger which these affections might cause to the traveling public.

Entertaining similar views with those of "Moos" and knowing the large number of lives lost upon our railroads, I presented the subject to the careful consideration of the members of the Medical Society of the State of Pennsylvania, in May, 1881, and a committee was appointed to draft a resolution as follows:

Be it Resolved, therefore, that the Legislature of the State of Pennsylvania be petitioned at its next annual session to pass a law requiring all railroad employés to be examined for their acuteness of hearing, by means of the voice, watch, clock, bells, whistles, etc., before taking charge of any fast train on any railroad in the State of Pennsylvania.

After the reading of said resolution, which was approved by this Society, and on motion of Dr. John L. Atlee, of Lancaster, the author of the paper was appointed chairman of a committee of his own selection, to bring this important matter to the attention of the various railroad authorities, and obtain their aid and coöperation to carry into effect the following suggestions —

To the Presidents, Directors, and Superintendents of the various Railroads in the State of Pennsylvania.

GENTLEMEN: At a meeting of the Medical Society of the State of Pennsylvania held at the city of Lancaster, May, 1881, composed of representative medical men; from nearly every county of the State, who are convened yearly to discuss and devise measures for the conservation and improvement of the health of the community, and with special reference to the prevention and *cure* of diseases, accidents, and injuries to human life, a paper was read in which proof was given that, owing to deafness the result of disease or injury of the ears, railroad accidents have occurred, causing loss of valuable lives and property, for which enormous sums are paid for damages recovered from your companies in cases of such accidents.

(1) Locomotive engineers, firemen, and conductors are liable to affections of the ear with decrease of hearing, usually on one side, which may have been originally acquired from disease in their childhood or youth, or which is to be attributed to their employment.

(2) This deafness appears to be more dangerous than color-blindness, because the latter is usually a congenital defect which can be defined precisely before the individuals are placed on active duty, while the deafness is an acquired disease but slow in its approach, and sometimes unknown to the person affected until an accident, *e. g.*, a cold or an injury, diminishes the hearing more and more on one or both sides, or destroys it completely, if it is not properly and promptly treated.

In May, 1882, this committee reported that copies of the resolutions of 1881 of this Society[1] had been sent to all the presidents and superintendents of the railroads of Pennsylvania, and the subject of the defective hearing of locomotive and other engineers has elicited much interest, and we are also happy to state that the Pennsylvania Railroad has adopted the following rules in regard to the hearing of those in their employ:

This is to be carried out by the superintendent. A competent person is to note the number of feet or inches distant from each ear at which a watch having a loud tick is heard distinctly, using a stop watch, to detect any supposed deception; and the number of feet at which ordinary conversation is heard.

In testing as to hearing, if a person who has good ears hears the watch at five feet distant, and the person examined hears it only at one foot, his hearing would be one-fifth, and may be recorded in fractions. Conversation in any ordinary tone should be heard at 10 feet.

It should be understood that all employés examined, failing to come up to the requirements of the above standard, shall be accorded the benefit of a professional examination.

[1] Transactions Med. Soc. State of Pennsylvania, May, 1881.

The above method has been submitted to a practical experimental test extending over nearly 2,000 men, employed as conductors, engineers, firemen, and brakesmen.

As an evidence of this Dr. Thomson cites[1] two complete detailed reports including 1,383 men in all, who were in the service of the Pennsylvania Railroad, and, of this number, 21 were found defective in hearing. It will be well to compare the results of this examination with another branch of service, namely, the military, who are not so much exposed, except in time of war, and show how important it is for the United States Government to excite a livelier interest in otology among its surgeons, since there are many in its army whose health and usefulness suffer from ear affections, and indeed many who lose their lives simply from a want of knowledge on the part of their physician and surgeon.

The reports of the health bureau of the Prussian and Wurtemberg armies for 1874–78, show that during those four years there were removed on account of ear disease:

Died	23
Rendered unable to perform duty	1,701
Partial invalids	33
Complete invalids	126
Total	[2]1,883

We have also found that both military and naval surgeons, owing to the want of final examination in practical details in treating the diseases of the ear, are so much at a loss that they allow obscure cases of disease of this organ to continue for months without efficient treatment. The objections to the use of the watch alone as a test of the defective hearing of locomotive engineers, conductors, etc., is that it has but two tones or sounds, or two notes of the musical scale, and certain individuals will hear conversation with ease, and yet be unable to distinguish the ticking of a watch except when pressed against the ear. The perception of these tones does not furnish us any knowledge as to the condition of the ear in general, and especially as to its capacity of hearing the human voice.

We would advise that several other tests should be employed, as speaking tubes and bells, whispering, and certain agreed sentences of uniform value. During the year 1883–84 I have examined numbers of engineers and firemen, and many of them are noble fellows, and like the oldest railroad locomotive engineer of the Philadelphia and Reading Railroad, "Squire" Lufkins, who has for nearly 40 years devoted his whole thought and energy to his plain duty, to the carrying of his passengers in safety to their destination, and on time; when he began he was just 20 years old, but was a well-trained machinist, and a locomotive was his delight, and when he got one to run, his ambition was realized. He loved his work and never let his mind run off the track, as he well observed, "When an engineer's mind goes off on side trips, his train is apt to make a violent attempt to follow." "Didn't you feel the effects of the work and responsibility on your nerves?"

"I can't say I did. I've read of doctors saying that no man can stand the physical and mental strain of running an engine more than twenty-five years. I don't believe this is so. If it is, I am a great exception. I am just as capable to-day as I ever was in my life, and I think I could go on and complete my second twenty-five years. Of course the engine shook me up, and there was noise and exposure all the time, but I got used to these things. They got to be as matter of fact as eating. As to the sense of responsibility, I felt it, of course, but it sustained me instead of breaking me down. Why, it is the soul of engineering—this thought that one is taking care of the lives of others. If I didn't have it I wouldn't run an engine. It would be like running a church without any God. And I would not work on any railroad if the safety of the passengers was not the very first thought in every department, from president down."

"Did your train ever meet with an accident?"

"Nothing bad. I've had little mishaps, but I never received a censure from my superiors or my own self. One time a man was hurt on my train, and I heard he afterward died. He was on a platform, where he had no right to be, when a cow ran into my engine. She got caught in the wheels, and two coaches were derailed. The passenger was thrown off and badly hurt. I think there was a suit against the company, and the company won it. That's the only accident I can remember. It was this freedom from trouble for so many years that led me to resign my position about two years ago. Thinks I, I am getting rather old in years. I'll have to quit anyhow before a great while. If I quit after some misfortune people will blame me, and the company, too, for keeping me at work. I am just as good an engineer as ever, and I'll end my service on my own motion. So I sent in my resignation, and the company gave me a satisfactory place as detective between Broad and Callowhill depot and Belmont."

"Have you kept any record of your mileage?"

"Yes, a sort of record, but it would take months to make up any figures from it. It was a sort of account book that I carried in my pocket. I would enter my boarding-house expenses, my mileage and other things all together. But I was an engineer thirty-seven years, and ran all the time between Philadelphia and Pottsville. This is a distance of ninety-three miles, but the run actually made is 100 miles, for there is a lot of side running. For five years, at the start, I had a freight engine, and all the rest of the time a passenger engine. For the last fourteen years I doubled the run most of the time. Now, you can make a calculation from these figures and facts. You say 1,890,000 miles. That seems a great deal, but I suppose it will do. I think an average of 150 miles a day for 350 days in the year for thirty-six years, would be a moderate statement. That drops a whole year for safety's sake. But I do not take much pains to study out such sums in arithmetic. If I were a Frenchman I suppose I'd know how many times my travels would have carried me around the

[1] *Medical News*, Jan. 14, 1882, p. 38.

[2] E. Weil, Archives of Otology, March, 1882, p. 54.

world, and all such things. I only know they carried me so often between Philadelphia and Pottsville, that I know every tie in the track and almost when placed there."

LOCOMOTIVES OF OLD.

"No doubt you witnessed many changes and improvements?" "Yes, but they came like a boy grows and it wouldn't be easy to tell when any one occurred. When I began there were no cabs on the engines and we had to dress warm for outdoor work. Sometimes it wasn't easy to hang on, but the time made in those days was nothing to that now made. At 60 miles an hour, which is an ordinary rate, it wouldn't do to be without a cab in cold weather. The wind would cut your eyes out. I remember when the cab engines were first introduced here. It was on the Pennsylvania road, which then belonged to the State. The engineers all raised a great row at the change and there came near being a strike. They said the houses were death-traps, and if an accident happened there would be no way to escape. They soon changed their minds, and if the houses were taken off now there would be a riot, sure enough. But I've heard that some of the English locomotives have no cabs[1]."

This is one of the remarkable instances in which an engineer had the requisite knowledge, was young, robust, and of perfect health of body and mind and fully prepared for his life's work, and received his reward not in being turned off in his old age, but placing him as we have suggested in another situation. In the year 1883–84, I have been consulted by five locomotive engineers, men in middle life, on account of defective hearing, and four of the five have been so much improved by treatment as to be able to hear the ordinary voice and watch at five feet, and resume their care of their engines, one being still under treatment.

Two conductors were examined and found to have disease of the drum membrane with relaxation and progressive deafness. Neither of these could hear the ordinary voice well except when the train was in motion, and every one's voice when speaking had a higher pitch and the drum made tense. In nearly all of the engineers and firemen, deafness was the result of cold applied to the ear directly by looking out of the window in cold winter weather when in rapid motion.

Another cause was plunging the whole head into a bucket of cold water, to get rid of the dust, cinders, and other material which fill up the hair, nostrils and ears. We found that one of the conductors between Elkhart and Chicago, on the Lake Shore and Michigan Central railroad, was so deaf as not to be able to hear when a person spoke to him even in a loud tone. In another instance a driver on a street railroad could not hear a passenger call to him to stop, and in consequence he attempted to get off and fell and died from his injuries. As recently as April 12, 1884, an inquest was held in Philadelphia in the case of James Hastings, nine years old, who was struck and killed by a "dummy" engine of the Frankford and Southwark railway. The conductor and engineer were called as witnesses, and the latter, who gave his name as Frank Golden, indicated the possession of this peculiar deafness. The deputy coroner asked him a number of questions to which he gave irrelevant responses. "Are you hard of hearing?" inquired Mr. Ashbridge. "I am now, but not when I am on duty," explained the witness. "Then you can hear when you are on an engine, and there is a great deal of noise?" "Yes, when there is a noise around me I hear firstrate, but when everything is quiet it affects the drum of my ear."

Since the investigations of Prof. Moos on this important deterioration of the hearing of engine-drivers in 1880–81, the results have been confirmed by Dr. Bürkner, of Gottingen, and Dr. Hartmann, of Berlin; Dr. Wm. Thompson, of Philadelphia, and the writer; while with Dr. L. D. Schwabock and Dr. H. Pollnow, of Berlin, results were as follows:

1. The torpedo-signal (or a similar sound, like the breaking of a tire), the steam-whistle signal, and the lesser noise of the dry buffer, were accurately perceived by two engineers whose hearing for slight noises was diminished to $^1/_{25}$—$^1/_{50}$ respectively, and for whispered voice to about $^3/_4$ of the normal amount.

2. No one, even with perfect hearing, they state, can hear the conductor's whistle or any noise in the rear of the engine while the train is in motion. The experiment with the torpedo-signal was afterward tried in the case of others, whose hearing was greatly diminished for watch ($^5/_{125}$ cm.). But these employes heard the signal promptly. Finally another employe who heard W $^1/_8$, W. V. θ o, 5 m.—2, 5 m,[1] was tested with the mouth whistle. He could hear it very plainly at 60 m, and said that the distance could have been doubled without any danger of his not hearing it. After summing up the results of their observations they came to the following conclusions: *That no great claims need be made upon the hearing of locomotive engineers or firemen, since a considerable diminution of hearing in these employes does not endanger the security of railroads.*

Dr. Hartmann states that it is not alone necessary that ordinary signals should be distinguished, but that there are other circumstances under which an engine-driver is placed, which render hearing more difficult, such as running in storms over a frozen track and through tunnels, etc. According to his experience, there are again other conditions which cause an engine-driver, who already hears badly, to hear much worse after having made a long journey, but recovers his hearing after leaving his engine. Some hesitation may be reasonably expressed and felt in accepting the conclusions of "Pollnow," viz.: "That so long as a conversation in ordinary voice can be heard, their defect involves no danger to the public."

The following facts were testified to by experienced engineers of the United States, who must depend largely upon their organ of hearing in order to assure the safety of the many lives entrusted to their care

[1] *Phil. Times.*

[1] Abbreviations. H. for hearing; W. for watch; T. F. tuning fork; B. C. for bone conduction; W. V. for whispered voice; cylinder watch, 1—25 m.

and skill: The sharp crack of a broken crank, the dull thud of a shattered connecting rod—in short, any of those obscure noises which signalize the approaching disability of a great machine, and any of those accidents which interfere with smooth running, may often, if readily discovered, save largely both of lives and property.

A veteran engineer says that two years ago a slight difference in the aggregate quality of the tones which came to his ear caused him to stop his train and look over the engine. "I found the trouble," said he, "to be due to the loosening nuts of two cylinder heads, which had been put in place without the usual precautions to prevent their working off. Had they done so, I would have carried in a crippled train, and changed the whole business of the road for some hours." "Then you consider quick and reliable hearing of importance to the locomotive engineer?" "No man," he replied, "has a right on an engine who has not all of his senses in perfect running order. The very feel of an engine when she is running is of the highest importance. A moment of rashness on the part of the engineer might in some instances lose him his engine."

The driver of a Hudson River Railroad locomotive said: "I was affected with deafness but once. There was some heavy artillery firing in Yonkers which lasted about ten minutes; my ears were very sensitive, made so, I think, through the habit of careful listening, and the moment I started up I felt there was something wrong about my hearing. At the end of ten days I put myself under the care of a physician. He found the trouble a considerable distance inside, and told me the concussion of the air had affected me. I was all right in ten days."

An instance in point is given in London *Lancet*, December 24, 1881, in which an accident occurred in Canonbury, England. Three trains collided in a tunnel, in which the signalman stated he gave a word of caution to the passing driver, which the latter asserts he did not hear. A similar accident happened in France, in October, 1880, fortunately without loss of life, but with a very great impediment to travel. It has been well expressed by Moos that, for the safety of the traveling public and for the prevention of accidents on railroads, not only a certain minimum of hearing is to be required, but both sight and hearing should be perfect, since sometimes reliance must be placed in one, sometimes in the other, and often in both combined. By such requirements only can danger and accident be reduced to a minimum.

CARBONATE OF TITANIUM.

BY A. B. LYONS, M.D., DETROIT.

Read before the Detroit Academy of Medicine, November 18, 1884.

GENTLEMEN OF THE ACADEMY:

The use of a class of remedies whose composition is either wholly the secret of the manufacturer, or else is deliberately misrepresented in the statements purporting to give an account of their composition, seems to be gaining ground among reputable physicians. I cannot but regard this as a misfortune to the profession. A few years ago there were few educated physicians who would attempt to defend the use of nostrums and secret remedies. Now I meet often with men who hold a high position in the medical profession who openly maintain that the physician ought not to be restricted in any way in the choice of his remedies. They take apparently high philanthropic ground, and say that we have no right to deprive our patients of the benefit they might obtain from the use of a secret remedy, merely on account of our ignorance of its constituents. They argue, further, that our knowledge of therapeutics is all or nearly all empirical; when we prescribe opium or potassium bromide, or any other article of the recognized materia medica, we do so merely because clinical experience has shown that patients in conditions similar to those existing in the case on hand have been benefited—not because we know how the remedy acts. Why, then, should we refuse to prescribe St. Jacob's Oil or Swaim's Panacea, if we have evidence that these nostrums, better than anything described in the pharmacopœia, will ameliorate our patient's condition? The reply has always been this: Manufacturers of nostrums are not in possession of any remedies unknown to the profession; their claims are based on falsehood, and if we are unable to obtain from known remedies the results we see produced by the combinations offered by charlatans, it is simply from our own ignorance of the subjects to which we are supposed to have given the closest study. To prescribe a quack medicine is therefore practically to admit that our own pretensions have been hollow and false.

For the pride of our profession, therefore, we should hold strictly to the requirements of our ethical code. But it is not necessary to place it on the ground of pride simply.

Notoriously the statements of charlatans are, to express it mildly, untrustworthy. In studying the effect of a quack medicine, too, we have to bear in mind the fact that the exaggerated statements which generally accompany the remedy have a powerful moral influence. Influences of this kind ought to emanate from the physician himself, and they must of necessity complicate all studies of the action of remedies; in the case of patent medicines they are not only a disturbing element, but one which must antagonize the personal influence of the physician. It is moreover so easy in most cases to penetrate the disguise under which well-known remedies masquerade as patent medicines, that the physician is inexcusable who prescribes the nostrum in ignorance of its real composition—and, certainly, equally inexcusable if, with such knowledge, he continues to prescribe it.

So long as the question relates merely to patent medicines and quack nostrums, the profession is as yet pretty well united—if not in practice at least in theory.

But within the last few years a new class of secret remedies has made its appearance and the old battle has to be fought over again, but with the foe now conspicuously displaying a flag of truce.

Pharmacy, we are told, is making such rapid strides in our age that the pharmacopœia is quite unable to keep up with the march of progress. Hence enterprising manufacturers come to the rescue, seizing upon each valuable discovery in therapeutics and embodying it in the form of a proprietary preparation. Then, too, remedies must be offered in this civilized age in a palatable form, and a preparation of any well-known drug, if only it possesses this recommendation, is hailed with satisfaction by physicians of the old school of practice who observe that their patients are drifting over to their homœopathic rival—because they do not have to take such nasty medicines. The large body of professional pharmacists who have endeavored to serve our profession by devising palatable and elegant preparations which should not be the property of any individual, but freely given for the good of humanity, find themselves put one side by the "enterprising" egoist who advertises iodia, or viburnum compound, or celerina or caulocoria—and a thousand other proprietary articles of which the formula is withheld. The properties and uses of preparations of this class are generally stated in language intelligible enough to the laity, and often the certificates of a score of distinguished medical professors are appended. You see no real difference between them and ordinary patent medicines—even in the prices, and yet the manufacturers distinctly state "For physician's prescriptions only"—it must be all right.

It is not surprising that physicians are perplexed, especially when all the medical journals, many of them conducted by men having an honored place in the profession, publish the advertisements of these secret remedies. To me it seems not difficult to decide where the discriminating line should be drawn. We cannot object to any preparation of acknowledged merit of which the formula is honestly published. When the formula is withheld we should refuse our sanction, especially when the preparation is offered under any fanciful name, such as papine, hydroleine, etc. By consistently adhering to such a course we should be very soon rid of the nuisance we all alike complain of, for manufacturers would find it suddenly to their interest to make common cause with scientific pharmacists, to the ultimate advantage of all parties. Any other course opens the way inevitably to frauds without number—and already we find instances not a few in which physicians have cut a sorry figure as dupes of the manufacturing charlatan. A short time since, a brazen attempt was made to impose upon the profession, as a great discovery, a medicinal preparation called "cohothedræ compound" (disregard of grammatical form is one distinguishing peculiarity of these innovators in pharmacy), a cure for typhoid fever, an *analysis* of the preparation by a distinguished chemist being offered in lieu of a formula. It makes little difference how often or how completely these frauds are exposed, the same medical journal which in its editorial columns may call attention, possibly once, to the exposure, continues week after week or month after month to publish advertisements of the preparation, often with a long list of references to eminent physicians. It seems to me that the only way we can protect ourselves against imposition is to put quackery in pharmacy on the same level as quackery in medicine, judge it by the same laws, and guard ourselves against it by adhering to the same ethical regulations. If a practitioner of medicine claims to have some remedy or gift of healing peculiar to himself, we withdraw from him our fellowship—rather let me say he places himself of necessity outside the pale of professional fellowship. The same principle applies equally to the man who claims to have a pharmaceutical secret. We are sure that such a man has not the interests of pharmacy at heart; it is unreasonable to suppose that his claim has any better foundation in fact than that of the medical charlatan. As one reasonably familiar with pharmaceutical products, I may go further than this and say that as a matter of fact these much advertised proprietary medicines do not evince either inventive genius or any high order of pharmaceutical skill.

After all this preface I come to the immediate subject of this paper. The September number of the *Medical World* of Philadelphia, contains the following notice of a new emmenagogue, which we quote *verbatim et literatim:*

"The pill used by the French women to produce barrenness I have found a valuable emmenagogue. Each pill contains two grains each of aloes and carbonate of titanium. They have never failed to bring on the menstrual discharge at the next epoch. Stoppage produced by cold is restored by this preparation in forty-eight hours. It is a most powerful direct stimulant to the sexual organs. I have no doubt that it would produce barrenness if persevered in. A married woman using the pill does not become pregnant.

"My usual formula is as follows:

"℞ Pulv. aloes (soc.).....
Carb. titan.....āā ʒi
Fiant pilulæ No. xxx. Sig. One pill three times daily.

"No particular nicety need be paid in regard to dose; from one to three pills may be taken *ter die.* They should be commenced from one week to ten days before the expected menstrual period. I have employed them in many cases of amenorrhœa, both in retention and suppression, and almost invariably with the utmost gratifying results. So certain are they to restore the uterine secretion when suppression does not depend upon organic disease that I almost regard them as a specific. Their action is peculiar; they seem to possess the power of restoring the secretion when suppressed, and of promoting it when deficient. This pill is, in fact, a female regulator. When the obstruction is from cold, these pills, with warm pediluvia, are sufficient. They operate kindly and without excitement; the patient hardly knows she is restored."

The communication is from Dr. M. M. Griffith, of Du Bois, Pa., who a few years ago brought to the notice of the medical profession crude petroleum mass as a therapeutic agent.

There is no intimation in the communication that the carbonate of titanium is not a perfectly well-

known compound, and possibly it may be that the name, at least, was not an unfamiliar one in Pennsylvania. Elsewhere in the United States, however, it had a strange sound. In the *Medical World* for October it was stated editorially that the carbonate of titanium was a rare drug, expensive and hard to obtain, and that it was not to be had in any of the large cities, but that a supply had been ordered from abroad, while a later notice stated that one firm in Philadelphia was prepared to furnish the article, at the moderate price of 50 cents per ounce.

I have left it to members of the Academy to form their own opinions in regard to the value of a drug which will inevitably produce barrenness in a married woman; but I cannot forbear quoting a few sentences from the editorial alluded to as indicating the drift of popular sentiment inside as well as outside of the profession.

"The article of Dr. Griffith in the September *World* has created a widespread interest in carbonate of titanium. We have received numerous inquiries concerning it. Telegraphic orders were received for it in New York from Boston, Louisville, and all parts of the country. * * We invite a report of further experience with this drug, *hoping that the gratifying results of Dr. Griffith will be verified.* Menstrual irregularities are becoming more and more prevalent, [among married women?], and any drug promising so much as carbonate of titanium should be fully tested."

Whether the six to eighteen grains a day of aloes prescribed would not of itself be sufficient to induce barrenness in a delicate female, I leave also to my hearers to judge.

My own attention was especially caught by the evident incongruity in the name itself. Carbonate of titanium to the ear of the chemist sounds about as plausible as pterygium of the iris to an oculist. I had a curiosity to see a chemical compound realizing such a singular freak of chemical affinity. Accordingly I awaited with some impatience the arrival of a supply of the drug. I have with me a sample of the article received with the written, not printed, label "carbonate of titanium." Any one familiar with drugs would guess at once that it was what formerly was known as iron sub-carbonate, but that compound, which is in reality ferric oxide, is tasteless, while this has a disagreeable ferruginous and bitter taste.

I found that a portion only of the substance dissolved in water, and this portion gave reactions for iron (ferrous) and for sulphuric acid. It consisted in fact, almost entirely of ferrous sulphate. After most of this salt was washed out, however, water continued to dissolve slowly something which had a bitter taste, and communicated to the water a strong orange tinge. The solution contained a vegetable alkaloid which proved to be sanguinarine, quantity too small to be easily estimated.

The residue insoluble in water was treated with hydrochloric acid, which dissolved it slowly, without effervescence, leaving only a few fragments of vegetable tissue, which were referred to the blood-root otherwise shown to be probably present, but were not positively identified. The solution consisted almost wholly of ferric chloride, showing that the insoluble substance had been in fact sub-carbonate of iron. Besides these principal constituents, the powder contained traces of calcium, potassium, sodium, silica, and titanic acid.

Quantitative analysis showed the composition of the powder to be approximately as follows:

Ferrous sulphate (cryst.)	54.8
Ferric oxide	40.5
Lime salts, Soda "", Potassa ""	2.2
Titanic acid and Silica	1.0
Organic matter (blood-root) and loss	1.5
	100.0

Practically, therefore, it consists of a mixture of nearly equal parts of sub-carbonate of iron and sulphate of iron, partially exsiccated, with addition of an insignificant quantity of blood-root, and the "new" emmenagogue proves to be the old familiar combination of aloes and iron.

I am entirely ignorant of the source from which this powder was originally procured. It was sent to me by a leading wholesale drug house in New York, who undoubtedly were dealing in good faith. Possibly it has really come from France under the name it now bears, and that name may have been given it without any intent to deceive. But chemical names have a definite invariable significance, and when a substance is labelled titanium carbonate, you have a right to expect at least that it will prove to be a carbonate, and it is not unreasonable to feel some disappointment if titanium is so nearly absent that the blowpipe fails to show its presence. Yet it is to precisely such impositions as these that the medical profession lays itself liable when it pleads ignorance as an excuse for accepting the dicta of men who confessedly tell only a part of the truth. I do not know who is the responsible person in the present instance, but I resent, as a gross insult to the profession, the attempt, if such has been deliberately made, to pass off a mixture of well-known medicinal agents as a new remedy of extraordinary power, and that under a name so impudently false.

Since writing the above I have come across some additional items of information in regard to titanium carbonate. In the *Druggist's Circular* for October, 1884, we find S. W. D., of Mansfield, Pa., asking for a short account of the physiological action of carbonate of titanium. Observe that he does not inquire what it is or where it is to be procured, and note that he writes from a town or village not a hundred miles from Du Bois.

His query is promptly answered in the November number of the *Circular*—not by the editor, but by M. Milton, M.D., who writes from Du Bois, Pa., a townsman, therefore, it seems of Dr. M. Milton Griffith, and possibly, we may conjecture from similarity in name, a near relative.

From the reply we quote a few sentences, which leave no doubt about the character of the preparation, and settle conclusively the question what atti-

tude the profession must take toward the newly discovered "emmenagogue."

First, we are told that "titanium is found in several mineral species, in combination with magnetic iron ores. It is of a red color, and resembles copper. It is used to some extent in the arts." (Neither of the two latter statements, by the way, is true.) "Carbonate of titanium is made by double decomposition of sulphate of titanium and carbonate of sodium. It is a reddish-brown powder of a disagreeable, bitterish taste, partly soluble in water." This volunteered information is highly interesting, especially to one who has keenness enough to read between the lines. Its cunning blending of truth with fiction shows consummate genius in the perpetrator of this most daring fraud. Now listen. Properties: "It is tonic, alterative, and emmenagogue. It has produced abortion in many instances, and is commonly resorted to for that purpose by reckless women, and advised by still more reckless physicians. It seems to act without producing the very alarming symptoms usually attending such cases. It has the reputation of preventing married women from becoming pregnant, by its use in combination with aloes; it has surely done it in a number of cases that have come under my observation. It is generally used in domestic practice, in the form of a saturated tincture with whisky." How singular that a compound of the rare element, titanium, should first come into use as a domestic remedy, and that in the rural districts in Pennsylvania! "My attention was first called to it by its domestic use for purposes not altogether legitimate. It is a valuable remedy, and is worthy of further consideration."

Emmenagogue forsooth! Was there ever a more unblushing advertisement of a fœticide? It matters not that the drug is innocent of the active properties attributed to it; it will be bought for illegitimate purposes, and no other. In view of this fact, I am sure that no member of the Academy will regard the carbonate of titanium with any favor or indulgence, or will fail, indeed, on all fitting occasions to denounce it as an attempt to drag the profession into association with a class of criminals whose practices we utterly abhor and condemn.

A CASE ILLUSTRATING THE APPLICABILITY OF MURIATE OF COCAINE IN NASAL SURGERY.

BY JEFFERSON BETTMAN, M.D., CHICAGO.

(Read before the Chicago Medical Society, Nov. 11, 1884.)

The introduction of muriate of cocaine will no doubt create an era in ophthalmic surgery, the glowing tributes it has already received in Europe and in the East render irrefutable its qualities as a most efficient and innocuous local anæsthetic. Both Knapp and Gruening, of New York, have already tested its action on the nasal mucous membrane, and the results attained thereby fully equal those in anæsthetizing the eye. Due to the extreme scarcity of the drug in Chicago, it is only at a late hour that I have been able to obtain a small quantity and to apply it in practice. Although my actual experience, so far, has been limited to the case subjoined, the striking results attained are sufficient to fulfill my most sanguine expectations and to regard it as a most valuable adjunct in nasal surgery.

Dr. K., a physician of this city, has been under treatment for some time, suffering from asthma nervosum. Observations render it beyond doubt, that the asthma is purely reflex, induced by great hypertrophy of both inferior turbinated bones. Barring occasional obstructions to the free nasal respiration, but little discomfort is experienced during the day. A recumbent position, the warmth generated by the bedding are sufficient to produce reflexly a sudden turgescence of the turbinated bones, blocking up of the respiratory fissure, a serous discharge, and to finish the clinical picture, a culminating, violent attack of asthma. The hyperæsthesia of the nares is truly extraordinary, the simple introduction of the speculum is painful. The doctor has to exert all his self-control to permit the mere application of the probe to the parts. Endeavors had heretofore been directed to reducing the cavernous tissue by means of the galvano-cautery. The extreme sensibility would not permit of a thorough and prolonged application of the cautery, sufficient to act upon the deeper lying structures, so the results obtained were but partially successful. Last Saturday the doctor called at my office and we resolved to apply the muriate of cocaine prior to cauterization. Gruening,[1] according to his report, instilled the solution into the inferior meatus, the patient's head being placed accordingly.

The small quantity of the solution at hand, compelled me to adopt another method, which impressed me as being more expedient, and at the present not unworthy of consideration, as far more economical. A pledget of cotton, sufficient in bulk to occlude the inferior meatus, was soaked with 15 drops of a 4 per cent. solution of cocaine and placed in the left nostril, between the septum and enlarged turbinated bone. At intervals of five minutes, two or three drops were instilled upon the cotton *in situ*. At the lapse of ten minutes, the left narium was so anæsthetized as not to perceive the touch of the probe. However, as a precautionary measure, I only removed the cotton at the expiration of a quarter of an hour. The anæsthesia of the parts was now so profound, that the gentleman could hardly give credence to my assurances that I had thoroughly and vigorously probed the parts. In marked contrast was the undiminished sensibility of the right nostril; the introduction of the probe compelling him to cry out lustily. Previous cauterization had been made with the flat, surface electrodes, our aim, however, being to destroy the underlying cavernous tissue, we resolved to use a sharp, cutting point which had been made according to my design by Dr. McIntosh, of this city. The plates of the battery (a large Bruns battery

[1] *Medical Record*, November 1, 1884.

composed of two elements) were immersed sufficiently to produce a white heat when connections were made. The electrode was introduced and applied for fully three seconds ere calling forth any expression of pain on the part of the patient. As the doctor assured me. the discomfort was so minimum as hardly to be dignified with the title "pain." A striking proof of the almost total painlessness of the application, is the fact that our hitherto sensitive colleague permitted me to make another prolonged application at the same sitting. The action of the cautery was so thorough, that I am certain its ultimate results will far eclipse the benefit derived from the previous, more superficial applications. After a period of 25 minutes, the sensibility was fully restored. The doctor now began to experience the slight soreness that is always felt after cautery.

More extended observation, I trust, will tend to confirm the results already obtained and to strengthen faith in this remarkable anæsthetic. The range of its applicability is so wide, that it is nearly impossible to predestine its possibilities. It is certainly not irrelevant to state here, that its use in nasal surgery will probably enhance the popularity of galvano-cautery, and increase the field of utility of this most serviceable and effective mode of treatment.

113 Adams St.

UNILOCULAR OVARIAN CYST, WEIGHING NINETY-FIVE POUNDS, SUCCESSFULLY REMOVED.

BY GEO. E. RANNEY M.D., LANSING, MICH.

The following case is one of interest for a number of reasons, and especially so on account of the size of the tumor, which, as far as I know, is the largest of the kind ever removed, while few tumors of any variety have exceeded it in weight. A case (occurring in a negro woman) of fibro-cyst of the uterus, weighing 130 pounds, including seventy-one pounds of fluid drawn from the cyst, six days before the death of the patient, together with the solid portion of the tumor, and twenty-four pounds of fluid removed after death, is reported by Dr. C. C. Stockard, of Miss., in the New York *Med. Record*, Aug. 16, 1884, concerning which he says it is, as far as he can learn, the largest one on record. In this case the question may arise as to whether the most of the twenty-four pounds removed on post-mortem did not accumulate during the six days following the tapping.

Thomas, on the Diseases of Women, p. 543, second edition, says: "The unilocular tumor consists of simple dilatation of a Graafian follicle. This may go on until the size of the uterus in the eighth or ninth month of pregnancy is reached. Kiwisch has met with one whose contents weighed forty pounds, but such a development is exceedingly rare, as they seldom remain simple after passing the dimensions of an adult head." Further on he says of multilocular cysts: "The size to which these cysts will grow is truly wonderful. It has been already stated that unilocular or monocystic tumors rarely attain a great size as such; they become, as they increase, multilocular or polycystic, and then their growth may become excessive. Instances are on record of tumors containing over one hundred pounds of fluid."

Our distinguished countryman, Dr. Emmet, in his "Principles and Practice of Gynæcology," second edition, p. 826, reports the removal of a multilocular tumor weighing seventy-nine pounds, and adds: "This was the largest ovarian tumor I have ever removed."

The case in question was in the person of Mrs. T., of Grand Ledge, Mich., a native of Michigan, æt. 55 years, married, and the mother of two sons, aged respectively 30 and 34 years. Her frame is below medium size, and up to 40 years of age she never weighed over 90 pounds. At about this age she became very fleshy, and weighed over 200 pounds. Her menopause occurred at the age of 45 years. At about the age of 49 years she discovered that the enlargement of her abdomen was more marked, and she experienced an uncomfortable fullness of it, and thought she felt through its thick walls an unnatural growth or accumulation, which led her to think she required medical assistance, and accordingly she selected her advisers from a "covey," or "brood," of ignorant homœopathic practitioners, such as afflict most of the towns of our beautiful State, where they are hatched out in as little time as it would take an egg to incubate, and where the law recognizes no difference between them and the most skillful physicians.

Her case was diagnosed by them as one of abdominal dropsy, and the patient labored under that delusion, and was treated for dropsy, up to within six weeks prior to my first visit, when Dr. Wright, of Grand Ledge, an intelligent practitioner, was called to see the case. He reports that he found her in a general anasarcous condition, which anasarca, by appropriate treatment, became somewhat diminished. About one week before I saw her, and nearly two weeks before the operation, the doctor had attempted paracentesis with a medium-sized trocar, but only succeeded in drawing away a small quantity of straw-colored fluid and a thick gelatinous material of about the same color.

I was called to see her, with Dr. Wright, Oct. 2, 1884, and found her truly a sight to behold. Her abdomen was enormously distended, and its walls firmly stretched over what I diagnosed at the time, and what subsequently proved to be, a monocystic tumor of left ovary. The tumor had pressed the rectal muscles apart at the umbilicus, causing a hernial protrusion, which looked toward the floor as she stood up, so greatly was the abdomen above it distended. There had been a constant external dripping from the puncture made with the trocar—a circumstance disagreeable to the patient and attendants.

The tumor was so large and cumbersome that the patient had been, for a long time, unable to lie on her back, and for years past, in order to change from one side to the other in bed, she had to be raised, when she would stand upon the floor and approach her bed from the opposite side.

By digital examination per vagina, I found an œdematous condition about the womb, and by carrying my finger higher up, could recognize the harder, characteristic resistance of the tumor. Examination of uterus with finger and sound revealed nothing abnormal. The œdematous condition of pudenda and protrusion of abdomen rendered specular examination impracticable had it been desirable.

The walls of the abdomen would glide over the tumor, to a limited extent, and I was led to hope, notwithstanding its long existence and extraordinary size, that its adhesions were not extensive, as is generally the case in multilocular cysts. Desiring to ascertain of what the tumor was composed, and, if possible, to determine whether the tumor was monocystic or polycystic, I drew through an aspirating needle, at a site somewhat remote from the previous tapping, a substance small in amount, in color and consistence like that previously drawn by Dr. Wright, and proving, on examination, to be almost wholly albumen. The trouble was seriously telling upon the patient's health. The weight of the tumor was gravely telling upon her strength; impairing seriously her digestion and assimilation, and thereby lessening her flesh; its pressure upon the blood vessels, and consequent anasarca; its pressure against the ribs and diaphragm rendering respiration difficult and short, were conditions which rendered a practical illustration, in her case, of Dr. Holmes' remark, "That the latter stages of ovarian dropsy should be prolonged over months instead of weeks would be a matter of regret rather than congratulation." Indeed the patient expressed the belief that death would soon come to her relief, and she longed for that eventful time if she could not be relieved by an operation, which she not only expressed a willingness to submit to, but begged me to perform, regardless of its dangers, which had been greatly enhanced by rupture of the ovarian cyst, at the point of tapping, which permitted a discharge into the peritoneal cavity, which discharge enveloped the organs of the abdominal and pelvic viscera.

Accordingly, Wednesday, Oct. 8, 1884, was the time agreed upon for the operation. On the day previous the largest room in the house, which was carpeted and furnished, was tightly corked, and disinfected with sulphurous acid gas. The morning of the operation I thoroughly sprayed the room with a solution of carbolic acid. The family had recently moved into the house which is comparatively small, and unavoidable delay in making necessary repairs, rendered the house incommodious. I selected for the operating room an unfinished kitchen only covered by the roof, the walls being neither lathed or plastered. The day was a cloudy one, and though the room was poorly lighted it was well "ventilated." This room I also thoroughly sprayed. Every assistant was requested to bathe before coming to the house, and on their arrival they washed their hands in carbolized water and sprayed their clothes. Every instrument and thread was disinfected, as were all the dressings. The spray was continued during the operation, and the temperature of the room kept at 92° F., by means of the kitchen stove. I am under great obligation for the efficient and able assistance in operating rendered me by Dr. Wright, who visited her daily before, and since the operation, also to Dr. Davis, of Grand Ledge, and especially to Dr. Jenks, of Detroit, and Dr. Post, of Lansing.

After etherizing the patient, who had to lie on her side, as previously stated, we made the abdominal incision in the usual place, finding the walls quite thick, owing to its fatty and œdematous condition. The incision was made through the site of the tapping, finding the sac at this point, which was friable, ruptured, permitting the escape of considerable of its contents into the peritoneal sac as previously mentioned.

By the ordinary means of exploration we found adhesions, though not extensive, which I readily broke up with my hand, and though causing at one time terrific bleeding, I was able to promptly control it by pressure and ligature. The pedicle was patulous and broad when compressed, though not large, as a whole, it was very vascular and supplied with three or four quite large arteries. The pedicle was held by hand and compressing forceps, while a double, stout, braided silk ligature was passed through it, carefully avoiding the large blood-vessels, looped on itself and firmly tied. The stump was then severed, fine silk ligatures applied to the ends of the arteries, and the end of the stump seared or cooked with a hot iron, the end of the stump cleanly wiped and dropped into the abdomen.

The remainder of the escaped material of the tumor was carefully removed by hand and sponge, from the abdominal and pelvic viscera.

The peritonæum was little if any inflamed. The long and persistent pressure of the tumor against the peritonæum, however, had caused a wonderful thickening of it, which was found studded with growths the size of a kidney-bean, which protruded, presenting a remarkable appearance, some of them looking like fatty material and others like pieces of raw beef, and were susceptible of being pinched off by the thumb and finger. The tolerance of rough usage which the peritonæum had acquired, accounts, I believe, in a large degree for the almost total absence of peritonitic symptoms, before and following the operation. The abdominal wound was closed with interrupted wire sutures, the disinfected gauze, mackintosh compress and flannel binder applied and the patient placed in bed in the room previously prepared for her. No drainage tube was used. The time consumed in the operation was three hours and twenty minutes. The tumor had the enormous weight of 95 lbs.

I remained with the patient twenty-four hours following the operation, during which time she thoroughly rallied and expressed surprise that she was alive and that she was able to lie on her back, which for years previously she had been unable to do. No nausea or vomiting has followed the operation. At 4:30 o'clock P.M., about three hours after the operation, her temperature was 99° F.; pulse good. At ten the same night the temperature had come up to 101½°, pulse full and strong. The bladder by

that time had become full and I drew from it a pint or more of amber-colored urine.

Oct. 9, at 6:30 A.M. the day following, temperature was 99½°, pulse 116 and quite good; slept well during the night; looked not bad, felt cheerful and asked if she could have something to eat; says she feels a little "wind pressure" in lower part of bowels. At 10 A.M. passed a pint of urine without the use of catheter; temperature 100½°; at 8 P.M., temp. 100°, pulse 120.

Oct. 10.—9 A.M. Temp. 98¼°, pulse 100; at 12 M. passed gas from bowels; temp. 99¼°.

Oct. 11.—9 A.M. Temp. 99¼°, pulse 100; continues to pass gas from bowels; at 9 P.M., temperature 99¾°.

Oct. 13.—12 M. Temp. 100°, pulse 100, after dressing wound for the first time since the operation. The peritoneal wound healed by first intention throughout its full extent, a fortunate circumstance, as it prevented the fluids entering the peritoneal cavity from the non-union of the anasarcous tissues external to it.

Oct. 14.—Dr. Post visited the patient in my stead, finding her about as she was the day before, the wound suppurating, but healthy.

Oct. 15.—About the same; gas continues to pass freely from the bowels. At 11 A.M., temp. 98°, pulse 96, full and softer than previous. The tongue, which has worn a white fur and been somewhat dry, with red edges, is now more moist, and its coating diminished. She says she would like to sit up. I removed all the stitches except one, and strapped the wound with adhesive plaster. Up to this time the dressings were made under the carbolized spray. Thus far she has taken nothing on her stomach excepting water. She has thus far been nourished and stimulated by enemata, composed of beef tea, milk, brandy and sulphate of cinchonidia.

Oct. 16.—Temp. 98½°, pulse 108. She took a little milk on her stomach, which disturbed her somewhat, so it was discontinued.

Oct. 17.—Bowels moved naturally. Temp. and pulse same as yesterday. Gave her some peptonized milk, which she enjoyed.

Oct. 18.—Temp. 98°, pulse 100, and a little "jerky," and not quite satisfactory. Continued the milk whey and enemata.

Oct. 19.—Temp. 99°, pulse 108 at 12 M.

Oct. 20.—Temp. 99°, pulse 108 at 12 M.

Oct. 21.—Temp. 98°, pulse 102. Ate two crackers contrary to orders. No perceptible result followed.

Oct. 22.—About the same. From the last date to the present, appetite and digestion increased; strength improved. She has been cheerful all the time, and slept about twelve hours per day. No tympanitis existed since the first two or three days, though she has continued to pass gas freely from the bowels. Up to the time she commenced to take food on her stomach, she had two or three transient spells of vertigo. As she became better nourished, no further symptoms of the kind manifested themselves, and her strength gradually improved, when, on October 24 and 25 she sat upon the commode to defecate. Sitting up had not been permitted by me, and I interdicted it as soon as I learned the fact. Her appetite has been, and is, voracious with slight interruption. Besides the food previously mentioned, she has been allowed eggs, also beef peptonoids, prepared by Reed & Carnick, of New York, and she has at times broken over my strict injunctions by eating more or less starchy food, when, finally, on October 30, she ate "sour krout" and drank sweet cider! These latter articles forcibly reminded her that she "had a stomach," and her bowels were rendered uncomfortable and moved slightly a number of times. Ten drops of laudanum injected into the bowels relieved the distress she experienced, and though her pulse seemed a little excited and flatulence increased, she declared that she felt firstrate.

The external wound has nearly healed, her temperature and pulse nearly normal; her tongue almost natural; strength good; countenance bright, and at the present writing it rests her to sit up a little while at a time, and it seems as though all danger had passed. It is worthy of remark that immediately following and since the operation, her kidneys have been quite active and that the dropsical condition of her limbs, which had rendered them two or three times their natural size, rapidly disappeared. No severe shock followed the operation; no hæmorrhage, peritonitis, septicæmia, phlebitis or abscess occurred. In short, with the exception of one or two days, which dates I omitted to note, she has had no untoward symptoms, and these exceptions were the result of disturbed digestion and assimilation from indiscretion in eating.

Since writing the above the patient has substantially recovered, she being able to walk, to ride out with comfort, and to do light work.

Lansing, Nov. 22, 1884.

SOME OBSERVATIONS ON THE TOXIC EFFECTS OF CHROME ON THE NOSE, THROAT AND EAR.

BY JOHN N. MACKENZIE, M.D., BALTIMORE, MD.,

Surgeon to the Baltimore Eye, Ear and Throat Charity Hospital.

Read in the Section of Ophthalmology, Otology and Laryngology of American Medical Association, May, 1884.

Among the many inconveniences from which those directly engaged in the manufacture of chrome suffer, the most prominent, perhaps, consist of a group of symptoms referable to the respiratory tract, and especially the nasal cavities and their dividing septum. In the chrome factory of this city, the workmen employed in the chambers where the bichromate is made, almost invariably acquire perforation of the cartilaginous portion of the latter from the irritating and corrosive action of the fumes and floating dust evolved during the chemistry of its manufacture. This destruction of the cartilaginous septum appears to be the most prominent anatomical lesion, and occurs with such striking frequency, that it may be looked upon as a characteristic and constant sign of this particular form of chrome poisoning. Perforation occurs, as a rule, with great rapidity; generally in a

few days after exposure to its exciting cause. I am told, by one of the workmen who has been engaged in the factory for over fifteen years, that extensive destruction of the cartilage sometimes takes place within 24 to 48 hours. It is commonly preceded by general congestion of the mucous membrane with more or less epistaxis, or by the symptoms of a well-defined coryza, such as obstruction of the nares, heaviness of the head, discharge of limpid fluid, sensation of foreign body in the nasal passages, reflex acts, etc. The mucous covering of the septum is quickly destroyed and the cartilage laid bare. Necrosis of the latter soon follows, and a communication between the nostrils is established by a gradual corrosion and breaking down of the septum, which produces finally a round or oval perforation. Or, the same result may be accomplished by the exfoliation of necrotic plates or layers of the cartilage, presenting the appearance as if they had been punched out by instrumental aid.

When the mucous membrane is destroyed, a crust forms which becomes closely adherent, and beneath which the corrosion of the septum proper goes on. After perforation takes place, there is also a tendency to crust-formation about the edges of the artificial opening. It is possible that the crusts may act to a certain extent as protective agents, thereby preserving the edges of the cartilage against the invasion of the floating particles and hence limiting the further progress of the corrosive action. The latter process seems, in the vast majority of cases, to be confined to the cartilage, and very extensive destruction of the latter may occur without change in the external appearance of the nose. The most frequent seat of perforation is the antero-inferior portion of the cartilage; or, in other words, that portion which is most directly exposed to the action of the irritant particles. The perforation itself varies greatly in size. I have seen almost complete destruction of the cartilaginous septum, nothing remaining but the merest rim of tissue to support the fleshy structures of the external nose.

Although this is its most frequent seat, the ulcerative process is not confined to the septum, but is occasionally met with in other portions of the nose, as the turbinated bodies and nasal pharynx. It is more likely to occur in the latter situation, as the voluntary removal of foreign substances from this cavity is more difficult than their expulsion from the nasal chambers. Ulceration, moreover, is also more likely to persist in the former than in the latter situation. The lower pharynx is also sometimes the seat of more or less clearly defined ulceration, and the same is probably true of the larynx, although I am unaware of its occurrence in the latter. The condition of the lower respiratory tract generally found is that of inflammation, characterized by intense redness, moderate swelling, with tendency to inspissation of secretion. These appearances are found as far down the trachea as the laryngoscopic view extends. In fact, the mucous membrane of the entire naso-bronchial tract is intensely hyperæmic, more or less swollen, and presents at various points evidences of capillary hæmorrhages and small extravasations of blood. These appearances are more pronounced in the respiratory region of the nose. Ulceration also attacks the hair follicles in the nasal vestibule, causing a dryness and itching, with falling out of the vibrissæ.

As the ulcerative process in the nose and retro-nasal space advances, the secretion becomes muco-purulent, and portions of the necrotic tissues are expelled either in shreds or as a fine detritus mingled with the greenish-yellow discharge. In some the nasal flux is inconsiderable, and perforation of the cartilage may occur without the knowledge of the individual. There is often a great tendency to the formation of hard, laminated, or tough, leathery crusts, which adhere to the structures with great tenacity, and whose expulsion is attended with considerable difficulty. They may be expelled through the anterior nares, or may fall into the lower pharynx, and be expectorated. Occasionally detachment occurs during sleep, the crust entering the laryngeal vestibule and giving rise to suffocative paroxysms.

Accompanying the catarrhal symptoms, there is a sensation of heat or burning in the nose and throat, and sometimes intense headache which is referred to various portions of the cranium. The sensation experienced is sometimes described as that of a bubbling or boiling as of water in a cauldron, in the vertex, and constitutes one of the most annoying features of the case.

Attention has already been called to the inspissation of the secretion and its tendency to crust formation. Notwithstanding such disposition, however, and the profuse and purulent character of the discharge, there is little, if any tendency to the development of a condition of ozœna. Fœtor is, so far as my experience goes, always absent, or at least, is never a prominent symptom. This I consider a point of especial interest. The absence of odor here is certainly in a measure due to the fact that the agent which excites the discharge, at the same time destroys the forms of life, upon the presence of which the fœtor of such conditions is supposed to depend.

The corrosive action is not always limited to the mucous membrane of the nose and throat. Purulent inflammation of the drum cavities also occurs, with perforation of the tympanic membrane and the consequent development of otorrhœa. This is in part doubtless due to extension through the Eustachian tubes; but it is conceivable that the membrane may become corroded by direct contact of the bichromate dust.

There appears to be a decided limit, however, to the destructive action of the corrosive agent on the cartilage and mucous membranes, a certain self-limitation of its corrosive power, which agrees with the known comportment of the poison in the presence of organic matter. For, as is well known, every molecule of matter with which each molecule of chromic acid comes in contact, is not only immediately destroyed, but the acid, in accomplishing such destruction, is itself rendered further innocuous by its conversion into an insoluble oxide of chromium.

Experimental chemistry has chiefly concerned it-

self with the investigation of the toxic effects of chromic acid and its salts upon the nervous system, upon the stomach, intestines and kidneys, and its corrosive action upon the external surfaces, and little attention has been bestowed upon its action on the respiratory tract. Gmelin, of Tübingen, who was the first to study, experimentally, their poisonous properties, found that the bichromate of potassium, when introduced under the skin of a dog, produced on the fourth day difficulty of breathing and deglutition, and the post-mortem revealed general inflammation of the respiratory tract, with bloody and fibrinous effusion.[1] Some years later Berndt, in the course of a series of experiments with the same salt, found redness of the windpipe in a guinea pig and pigeon poisoned by its introduction into the stomach.[2]

The only observations in regard to perforation of the septum that I can find are contained in an article by Bécourt and Chevallier in the *Annales d'Hygiène*,[3] and in the brochure of Delpech and Hillairet.[4] The latter observers report cases where extensive destruction of the cartilaginous septum existed. Both unite in the observation that the sense of smell remains intact, and that those who take snuff are exempt from nasal trouble, an immunity which they explain by the frequent cleansing of the nostrils which the use of that article necessitates, and the protective layer which it forms in the nasal passages.

My own observations in regard to the perforation agree in the main with those of the above writers, of whose investigations I was ignorant two years ago, when the subject was first brought to my notice. The persistence of the sense of smell is doubtless due to the fact pointed out above, that the olfactory region is very rarely involved.

The only instance of ulceration of the throat that I have found is that reported by Heathcote and referred to by H. Rousseau in his Paris thesis on chromic acid[5], whilst so far as I am aware, the perforation of the tympanic membrane and other phenomena referable to the ear have never been heretofore observed.

The injurious effects upon the mucous surfaces is most probably due to the corrosive action of minute particles of bichromate of potash which fill the atmosphere during the conversion of the neutral salt into the bichromate by means of boiling sulphuric acid.

It would appear, then, from the above, that the toxic action of the salt on the mucous membrane of the respiratory tract may be produced by direct inhalation, by the introduction of the drug through wounds of the skin, or its absorption through the mucous membrane of the digestive tract.

The extensive use of the salts of chromium in dyeing and painting confers upon their toxicological relations a manifest interest and importance. For not only do those engaged in their manufacture come within the range of their injurious influence, but the host of articles for the coloration of which they are employed may become agents of possible harm wherever they are circulated and in the many forms in which they are applied. An additional importance, too, in this regard, attaches to the introduction into the system of the poison through abrasions on the cutaneous surface and its toxic effects, when thus introduced, upon the mucous surfaces of the respiratory tract. It is accordingly well to bear in mind the possibility of such an occurrence in estimating the etiological factors in obscure and intractable inflammatory conditions of the respiratory apparatus. In this connection I recall a case of virulent nasal discharge, whose causation was vainly sought for among the ordinary diseases of the nose, and whose management was a failure, until the accidental discovery that the patient dyed her hair with a preparation containing a salt of lead, and a timely conversation in her hearing concerning the injurious effects of such preparations in general upon the system.

The medico-legal question may, furthermore, arise, as to whether a given ulceration of the nasal cavities with perforation of the septum be due to poisoning by chrome (or an allied substance), or whether it be an accident of constitutional syphilis. In coming to a conclusion upon this point, the absence of ozœna, or fœtor, the effect of simple medication, the self-limitation of the process, and, when the ulceration is no longer active, the absence of deformity of the external nose so characteristic of syphilis, may be looked upon as important data in establishing a differential diagnosis.

The marked and rapid corrosive effect upon the cartilaginous septum, suggests, moreover, a certain caution in its use as a therapeutic agent in affections of the overlying mucous membrane, and the careful protection of that structure when the caustic is employed In other affections of the nasal passages.

[1] Vide Christison, Treatise on Poisons; Bell's Med. Lib., Phila., 1845, p. 385; and Ducatel, Balto. *Med. and Surg. Journal and Review*, 1833, vol. 1, p. 44.

[2] De Nonnullis Chromii Praeparatis. Diss. Inaug. Toxicolog, etc. Vratisl. 1837 (Résumé in the *Med. Zeitung*, Berlin, 1838, Nos. 24 and 25).

[3] Mèm. sur les Accidents qui Atteignent les Ouvriers qui Travaillent le bichromate de Potasse, Annales d'Hygiène Publique, etc., 2 S., tom. 20, p. 83. Paris, 1863.

[4] Mèm. sur les Accid. Auxquels Sont Soumis les Ouvriers, etc. Paris, 1869. Baillière et Fils.

[5] Contribution à l'étude de l'aerde chromique, etc. Thèse de Paris, 1878. P. 64.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

ANTIPYRIN.—Dr. Max Jahn, of Grevesmühlen, in the Deutsche medical zeitung (*Med. Press*), reports a case of puerperal fever treated by antipyrin "with surprisingly good results." The preparation was given in 2 grm. and 1 grm., hourly doses, and then a pause. The patient belonged to the better classes, and was a chlorotic 2 para. The first dose relieved the tormenting pain of the peritonitis, not to return for five or six hours. This effect was spontaneously remarked by the patient as occurring on every occasion. The same relief was not obtained by a subcutaneous injection of 0.015 grm. of morphia. After the first series the temperature fell, two and a half hours after the first dose, from 107.2° to

101.3° F., without any perspiration, and from this to 100.1° F., not to rise again for twenty-one hours. The second series was given when the temperature had again risen to 104.8° F., after which it fell to 100.7° F. Other treatment—calomel, ergot, injections, etc.—was not suspended during the antipyrin treatment. The drug had a decidedly favorable action on the sensorium, ramblings ceased, the fixed stare, and all those appearances that give form to the facies puerperalis vanished, and repeatedly for longer or shorter periods a calm sleep came on. The pulse rate kept up to from 112 to 140, until the pelvic peritonitic symptoms abated, when it fell to 80 or 100. Collapse was never observed. No effect was observed on the meteorismus.

To this case by Jahn, the annotator of the *Press*, adds his experience in two cases: One a case of exomphalus with adherent omentum, on the second day after operation the temperature rose to 102, when antipyrin was given as by Jahn. By the time the last dose of the series was given the temperature had fallen to normal. The medicine was now given in 15 grain doses every four hours, and the temperature did not again rise. The case did well. The second case was one of encysted dropsy of the peritonæum from peritonitis, in a girl, æt. 18. The cavity was opened and drained. On the third day, as in the first case, the temperature rose to 102, when antipyrin was given as before, the temperature falling steadily to normal, at which point it remained as long as the supply of the drug held out. This patient is convalescent, but weak.

LEMON JUICE AS AN ANTIPYRETIC.—Dr. Lanchlan Aitken, of Rome, writes, in the *British Medical Journal*, very favorably of the antipyretic value of lemon juice, which he has given to advantage in cases of enteric fever, enteric fever complicated with malaria and typho-malarial fever. This remedy was first brought into notice about a year ago by Dr. Maglieri in *Il Morgagni*, who got his information from his uncle, a farmer, who had frequently used it to the benefit of some of his farm laborers, the victims of malarial affections which had resisted better known means of cure; and from his own experience in chronic malarial cachexy, and pernicious malarial fever. At the request of Professor Tommasi-Crudeli, the remedy was adopted by a large landed proprietor near Rome, and the results obtained by him, too, in severe cases of malarial infection, were very surprising, and were mentioned in a letter to the Minister of Agriculture and Commerce. In the *Morgagni* for March, 1884, Dr. Dominico Arzillo gives some details of cases in which he had used the lemon decoction with excellent effects, and writes in enthusiatic terms of the simplicity of the cure and of its superiority to quinine.

Its preparation is as follows: A freshly gathered and unpeeled lemon being taken, cut into thin slices, put in three teacupfuls of water, and boiled down to one teacupful in a clean earthenware jar; this quantity of the decoction was then allowed to stand over night in the open air, and given the first thing in the morning, after the liquid had been separated from the rind, pulp and seeds by careful filtration and compression just before it was drunk.

The effects observed by Dr. Aitken have been as good as those of large doses of quinine. It has never seemed necessary to give the decoction prepared from more than one lemon daily; but there can be no reason why more than one draught should not be taken in the three hours if required. It was noticed that freshly plucked lemons had more apparent effect than those not quite recently gathered, a serious drawback, in the meantime, to the use of the decoction in countries where there are no lemon trees. What the active principle is, is as yet quite uncertain, although it is obvious that it is not citric acid. The alkaloid principles, hesperidine and limonine, said to be obtained from lemons, are quite unknown to medicine; and no experiments have been made to ascertain their physiological properties.

MEDICINE.

ON COBRA POISON.—Dr. R. Norris Wolfenden (*Indian Medical Gazette*), has been conducting some investigations into the chemical nature and physiological action of cobra poison. He gives credit to Dr. Wall's book on Indian snake poison as being very valuable, and refers to Weir Mitchell and Reichart, but is ignorant of the scope and character of their investigations. His researches led him to the conclusion that cobra venom chemically consists of 1. A globulin venom. 2. A serum albumen venom. 3. Traces of other albumens. 4. Salts, chlorides, phosphates and sulphates. 5. Water. He found no proteid body resembling a peptone. Morphologically the glands secreting the poison resemble parotids, and the resemblance is still more striking from the occurrence of a diastatic ferment in the secretion (which was long ago spoken of as analogous to ptyalin by Burk and others). The venom is generally thought physiologically to be modified salivary secretion, consequently we should scarcely expect to find peptone present.

Physiologically he recognizes in cobra poison two distinct venoms. 1. Cobra globulin venom. 2. Cobra albumen venom. They exist probably in different proportions in different secretions, but these two are always present. The globulin venom is destroyed by high temperatures, but the albumen venom is not so affected. The globulin venom poisons the respiratory center, producing no paralysis of muscles; the albumen venom does not effect the respiratory center, but produces marked and progressive motor paralysis. He does not agree to the generally conceived opinion that cobra venom exerts no influence upon the blood; his experiments show that cobra venom decolorizes, by driving out the hæmoglobin from a large proportion of the discs, and breaks up a large number of the white discs completely, filling the plasma with minute granules. He does not think the bacterial forms, which are present in such large numbers in cobra venom, have anything to do with the activity of the venom. When recovery takes place from poisoning with a dose of the poison insufficient

to kill, it is not improbable that a condition of blood poison may supervene secondarily. The globulin venom is slower in its action than the serum albumen and a longer period often elapses after the injection before symptoms supervene or terminate life. The globulin is very deadly, and when once the symptoms have supervened asphyxia rapidly ends the existence of the animal.

Poisoning by Canned Foods.—Dr. John G. Johnson, of Brooklyn, N. Y., having had six cases in his practice of corrosive poisoning, according to his diagnosis, from eating canned tomatoes, he presented a paper on this subject before the Medico-Legal Society, of New York, and the *Boston Medical and Surgical Journal* gives the following as the general conclusions of his paper:

(1.) The six cases were not cases of sickness from spoiled tomatoes. (2.) They were cases of corrosive poisoning from muriate of zinc and muriate of tin. (3.) This poisoning amalgam must be abandoned. (4.) Exemplary damages "at the discretion of the jury," will be sustained by the courts for this reckless tampering with human life in using a dangerous means when a safe one could be used. (5.) The canners have only themselves to thank for the present pause in their business, for they have persisted in this dangerous plan, knowing it was dangerous. (6.) Every cap should be examined, and if two holes are found in it send the can at once to the Health Board, with the contents, and name of the grocer who sold it. (7.) Reject every article of canned food that does not show the line of rosin around the edge of the solder of the cap, the same as is seen on the seam at the side of the can. (8.) Reject every can that does not have the name of the manufacturer or firm upon it as well as the name of the company and the town where manufactured; "standards" have all this. When the wholesale dealer is ashamed to have his name on the goods fight shy of him. (9.) Press up the bottom of the can; if decomposition is commencing, the tin will rattle the same as the bottom of the oiler of your sewing machine does. If the goods are sound it will be solid, and there will be no rattle to the tin. (10.) Reject every can that shows any rust around the cap on the inside of the head of the can. If housewives are educated to these points then muriate of zinc amalagam will become a thing of the past, and dealers in "swills" have to seek some other occupation.

Experimental and Clinical Investigations into Bright's Disease.—Dr. Mariano Semmola (*Archives de Physiologie*) thus sums up the results of his study of the subject:

1. Each organism has a certain orbit of nutrient activity for the albuminoid substances as well as for the hydrocarbonaceous substances.

2. The albuminoid substances, as well as glucose, which present themselves in the circulation, in a proportion superior to the degree of activity of the orbit, are forcibly eliminated by the organism as foreign and useless substances by all the emunctories, and particularly by the urine. Albuminuria, in this sense, constitutes a simple act of organic epuration, to which the kidneys contribute, without any necessary epithelial alteration.

3. One of the most important physiological conditions for the accomplishment of the activity of this orbit of assimilation and combustion resides in the activity of the respiratory functions of the skin.

4. When the activity of the skin is diminished or suppressed, the albuminoids which appear in the blood-serum either do not attain, or do not preserve, their necessary degree of non-diffusibility, and hence become incapable of accomplishing their biological mission. There is necessarily, in consequence of this, an elimination of the albumen by the urine, and by all the other epurative emunctories of the organism. It follows, therefore, that the formation of urea is diminished because there is a diminution in the activity of the combustion of the albuminoids.

5. The want of assimilation of albuminoids furnished by alimentation may be produced by two initial conditions, that is to say: 1st. The quantity of albuminoids introduced being more than the orbit of respiratory activity proper for each individual, and consequently there exists an albuminuria by absolute hyperalbuminosis of the serum of the blood; 2d. While there should exist a perfect equilibrium between the quantity of albuminoids ingested and the activity of assimilation proper to each organism, if, from accidental and pathological causes, a diminution of the respiratory activity of the skin takes place, naturally that equilibrium is disturbed, and the same quantity of albuminoids that was formerly completely assimilable and combustible becomes necessarily in part inassimilable, and a *relative* hyperalbuminosis occurs. In the first condition the albuminuria is accompanied by the physiological maximum of urea proper to the organism in question, whilst in the second case, with the albuminuria there is observed a diminution of the urea in proportion to the physiological mean of the twenty-four hours.

6. This chemico-molecular alteration of the albuminoids, which we cannot detect chemically with the reactions that we possess at present, is characterized by their pathological diffusibilities, which deprives them of the power of accomplishing their biological function. It is from this fact that Dr. Semmola applies the name of *hetero-albuminæmia*.

7. Among the functions which exert a great influence in producing this complete chemico-biological evolution of albuminoids through the organism, the cutaneous functions must be placed in the first rank. But there are, of course, other influences, such as the liver, the ganglionic nervous system, etc., which require further and special investigation.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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GASTRIC DILATATION IN CHILDREN.—Ectasis of the stomach appears to have received more than usual attention of late on the part of French clinicians. It is a subject worthy of careful consideration in this country as well; for, whether the malady be more prevalent in Europe than here or not, it doubtless exists many times when our practitioners fail to detect it, contenting themselves with a diagnosis which recognizes only a symptom, not the primary lesion. This may be owing in part to the difficulty often attending its detection, and also in part to the mask the disease assumes of symptoms referable to the heart, skin and nervous system. Even when on the lookout for dilatation of the stomach in adults, few practitioners, we think, would expect to find it in young children. Yet Dr. J. Comby, in *Archives Générales de Médicine* for August and September last, presents some interesting features of the disease as studied in fifty cases which occurred in his dispensary practice. He found it associated with rachitis; not, however, as an effect, but as a cause, itself being the result of improper and excessive feeding. Although occurring in children for the most part, it may yet be found in infants at the breast as well as in those reared with a bottle. In such cases, the distension of the stomach is produced by the ingestion of a too great bulk of liquid nourishment. In other instances, alimentation of an improper kind is instrumental in its causation. The symptoms are dyspepsia, convulsions, insomnia, urticaria, eczema, bronchitis, and manifold other functional disorders. These symptoms may occur alone or together. Dr. Comby regards the prognosis as serious, since the dilatation may persist until puberty, or even until mature years. As measures of prophylaxis he recommends that bottle-fed infants be put to the breast, and that all infants, whether nursing or not, be fed at regular intervals and restricted as to amount. Infants should not be weaned too early nor too quickly, he thinks. If ectasis of the stomach already exists, the food should consist exclusively of milk in case of infants, while older children should be allowed solid food only. Irrigation of the stomach is sometimes advisable. Dr. Comby enumerates as diagnostic points, a protuberant abdomen, tympanism, and the characteristic succussion sound. The subject is an interesting one, and though some may not be inclined to accept the author's conclusions, particularly as regards its etiological relation to rickets, it may serve to stimulate to profitable research.

BINDING OF THE JOURNAL.—In answer to many inquiries we will state that any parties who may desire it, can have the volumes of their JOURNAL bound in good strong binding suited to the size of the volume (cloth sides and leather backs), neatly lettered with title and number of volume on the back, for *one dollar per volume*. The binding is done by the Chicago Legal News Company. Volumes that are properly wrapped and labelled, sent to this office free of charge to us, we will take charge of, get bound and return them as soon as possible, for the accommodation of our readers. We have no arrangements for furnishing simply skeleton backs or binding, as is done by the publishers of a few journals, simply because no book-binders wish to prepare and keep a stock on hand without some assurance that the JOURNAL will be continued in the same city more than one year.

NEW YORK STATE MEDICAL ASSOCIATION.—The first annual meeting of this Association was held in the city of New York from the 18th to the 21st inst. The meeting was numerously attended, harmonious, and well supplied with papers of interest and value.

An excellent plan of organization for the State was adopted. We omit a part of the matter under the head of Medical Progress and some of the editorial items to give place in this number to the first half of the proceedings as furnished by our special correspondent. The remainder of the proceedings and the President's address will be given in our next number, as they were received a day too late for this issue.

DEATH OF DR. SAMUEL M. BEMISS, OF NEW ORLEANS.—This eminent and well-known physician and medical teacher died suddenly at his residence on the evening of the 17th inst. A further notice and biographical sketch will be given in our next number.

SOCIETY PROCEEDINGS.

NEW YORK STATE MEDICAL ASSOCIATION.

First annual meeting of the New York State Medical Association, held at the Murray Hill Hotel, New York, November 18, 19 and 20, 1884; the President, Henry D. Didama, M.D., of Syracuse, in the chair.

FIRST DAY—MORNING SESSION.

Report of the Committee of Arrangements.—Dr. J. W. S. Gouley, chairman of the Committee, delivered an address of welcome, and gave an analysis of the programme of the meeting, stating that fifty-four papers had been received.

Address by the President.—In it he laid special stress on the paramount importance of therapeutics in a sound medical education, and reminded his hearers that, however admirable a thing culture might be, it should not be allowed to take equal rank with the essential branches of the healing art. He strongly advised the adoption of the three years' graded course by the colleges, and drew a striking contrast between the old and new systems of medical training.

Addresses by Delegates from other State Societies.—During the session a large number of delegates from other States were introduced. Dr. Shoemaker, of Philadelphia, spoke for the Pennsylvania State Society; Dr. S. S. Clark, of St. Albans, for the Vermont Society, and Dr. Wylie for the Connecticut Society. Dr. Wm. Detmold, President of the New York County Association, also made an address.

Report of the Committee on Organization of District Associations—Dr. Gouley, chairman, reported that the Committee recommended the formation of five district associations, to be known as the first or Northern, the second or Eastern, the third or Central, the fourth or Western, and the fifth or Southern; that the vice-presidents of the parent association should be the presidents of the district associations to which they respectively belonged; and that each of the district associations should have one stated meeting each year, the number of special meetings being left to each association to determine for itself.

After some discussion the report was unanimously adopted. From twelve to fourteen counties are represented in each of the five district associations, which were afterward organized in accordance with the plan proposed. The first stated meeting of the first district association is to be held at Utica on the second Tuesday in July, of the second at Saratoga on the fourth Tuesday in June, of the third at Syracuse on the second Tuesday in June, and of the fifth at Brooklyn on the third Tuesday in September.

The address on Surgery was delivered by Dr. E. M. Moore, of Monroe county, who took for his subject the "Transfusion of Blood."

He preferred the use of natural blood for this purpose to defibrinated blood, milk, or any of the saline solutions which had been employed by others. The two great dangers to be avoided are, ingress of air into the vein and coagulation of the blood, and in order to avoid the latter it was requisite that the period of transfusion should be short and definite. Unless the syringe, which was almost universally employed in the performance of this procedure, were held perpendicularly, air was constantly liable to be injected into the vein; and therefore he had devised a simple apparatus which obviated the necessity of a syringe, and also enabled the operator to make the transfusion in a very brief period of time. It consisted of a long narrow India rubber sac, to the lower end of which was attached a canula, provided with a rounded stiletto and Moncocque's mandril, by means of which the supply of blood could be instantly shut off. Another advantage of this instrument was that it required no lubricating, as was necessary for the packing of syringes, and by reason of which impurities might be introduced into the blood. The blood of the donor was to be received in a funnel held in the mouth of the rubber sac, and more than two ounces was never to be drawn at one time, on account of the danger of coagulation. Even less than this quantity was often sufficient, and if more were required, the operation could be repeated without withdrawing the canula from the vein of the patient.

AFTERNOON SESSION.

Dr. J. C. Hutchinson, of Kings county, read a paper on "Transfusion," in which he described a new apparatus. It consists, first, of a glass cylinder, graduated in fractions of an inch and holding twelve ounces. In an opening of the metallic cap which covers its lower extremity is fitted a punch screw, and the rubber cap at the top of the cylinder is perforated by a thermometer. The cylinder is placed in a double rubber bag which is filled with hot water, but which is so arranged that the graduated scale of the cylinder can be observed. The fluid within the cylinder flows through a rubber tube, the upper end of which is secured with the punch screw mentioned, and the lower end of which terminates in a canula provided with a slip-knot, which is inserted into the vein of the patient. Dr. Hutchinson prefers the use of saline solutions to blood for transfusion, as he thinks the action of the transfused fluid is dynamic rather than nutritive. From twelve to twenty ounces of fluid should be used, and the flow should not exceed one ounce per minute.

Dr. Rochester, of Erie county, thought that the quality of the fluid used in transfusion was of more importance than the quantity, and said that in the cholera epidemic of 1849 and 1850, in New York, all the patients in whose cases transfusion with saline solutions were employed (although temporarily improved by it) eventually died.

The President said that in cholera times it used to be remarked that "salting a patient and curing a patient were two different things."

Dr. Alfred S. Carroll, of Richmond county, read a paper on "The Question of Contagiousness after Acute Infectious Diseases." As this was a matter of great practical importance, especially in regard to the return of children to school after such illnesses, he had addressed inquiries to a number of prominent medical men throughout the State, but except in regard to small-pox the replies had varied very widely. The

results of his inquiries would subsequently be embodied in a report to the State Board of Health, and he trusted that the Fellows of the Association would favor him with any data that had been noted by them bearing on this subject.

Dr. John S. Jamison, of Steuben county, read a paper on "Chronic Intestinal Catarrh," which was an exhaustive treatise on the subject. Before the part of it devoted to treatment was reached, the reader was interrupted by the expiration of the half hour which was the limit for the reading of all papers.

Dr. Edward R. Squibb, of Kings county, read a paper on "The Modern Progress of Materia Medica," in which he said that physicians did not now depend on the books for the determination of doses of medicines, but upon the physiological and therapeutical effects which they produced, that drugs were used in more concentrated forms (fluid extracts having to a great extent superseded tinctures and syrups), that fewer and more active agents were employed, and that the quality of drugs was much more closely scrutinized.

Dr. W. H. Robb, of Montgomery county, read a paper on "The Management of Criminal Abortion," in which he discussed the best methods for controlling hæmorrhage, removing the entire ovum, the prevention of septicæmia, and the restoration of the patient to health. For the control of hæmorrhage he depended on ergot and digitalis internally or hypodermically, and locally the use of the hot vaginal douche and tents introduced into the mouth of the uterus. For the removal of the ovum, in order to accomplish which it was often necessary to dilate the os, there was ordinarily no instrument so good as the finger; but it was sometimes necessary to resort to the curette, or the female blade of the blunt-hook and crotchet. Such procedures should always be followed by intra-uterine antiseptic injections.

Dr. Ely Van de Warker believed that ergot was useless as a hæmostatic upon or at the third month, and he thought steel dilators preferable to the use of tents for dilating the os uteri. He had found the blunt curette of great service in removing the remains of the ovum, and thought it sometimes of advantage to swab out the interior of the uterus with the tincture of the chloride of lime after its use.

Dr. Charles Bulkley, of Monroe county, read a paper on "Chronic Mercurial Poisoning." The case on which the paper was based was that of a patient who suffered from symptoms resembling those of arsenical poisoning, but which were ascertained to be due to the mercury used in the coloring of the hard red rubber dental plate which she wore. Since then he had met with several other similar cases, though of less severity.

Dr. R. H. Sabin, of Albany county, read a paper on "A Case of Acute Lead Poisoning, Resulting Fatally." There was probably serous effusion of the brain, though an autopsy could not be obtained. The patient, while apparently in good health, fell suddenly to the floor, and remained unconscious up to the time of death, a period of thirty-two hours.

The following papers were read by title: "The Therapeutics of Diphtheria," by Dr. J. W. Moore, of Albany county; "Notes on Dislocation of the Hip, based on 238 cases occurring in the State of New York," by Dr. Frederick Hyde, of Cortland county; and "Intestinal Obstruction," by Dr. Avery Segur, of King's county.

EVENING SESSION.

Dr. H. E. Mitchell, of Rensselaer county, read a paper on "Errors of Refraction: the Importance of their Recognition and Correction in Early Life."

The rapidly increasing number of defective eyes in children, he thought, could be arrested to some extent, at least, if more general practitioners would provide themselves with sets of the ordinary test types, and with the optometer, which was a very simple, but useful instrument, which demands to be better known.

Dr. Austin Flint, Sr., of New York, read a paper on "The Dietetic Management of Dyspepsia," in which he maintained that dyspepsia and indigestion are distinct affections. The greater number of dyspeptics at the present day, he thought, were individuals who endeavor to regulate their diet and all the habits of life in accordance with certain rigid rules which were formerly much more in vogue than now, and especially in New England. The guides for eating should be the appetite, the palate, and common-sense. Dietetic idiosyncrasies are much less common than many believe to be the case, and the patient's experience with particular articles of food was apt to be extremely fallacious. In general, the diet which was beneficial to the healthy individual was beneficial to the dyspeptic. It was a mistake to leave the latter hungry, and food was to be taken not merely at stated intervals, but whenever the appetite craved it.

Dr. N. C. Lynde, of Erie county, read two papers, the first on "*Double Synchronous Amputations*," with a table of such operations collected from the reports of surgeons throughout the State, and the second on "The Functions of the Auricle." In this paper he claimed that the main function of the auricles was merely that of a reservoir into which the great veins emptied, and the principal part of the paper was devoted to an argument in support of the proposition that they did not contract. In the course of this he claimed that the pulse in the jugular vein was due exclusively to the contraction of the right ventricle.

Dr. Austin Flint, Jr., remarked that the views of the author of the paper were in direct variance with those of all recognized physiological authorities, and that personally he had often himself actually seen the auricles contract in animals whose hearts had been exposed. He claimed that if the auricles did not contract their walls would become atrophied, as was the case with muscles that had become paralyzed, and that direct observations on dogs (without exposing the heart), had shown that the auricles, as well as the ventricles, contracted. This was done by means of sounds which were introduced into the cavity of the heart through the jugular vein and which were provided with two rubber bags, one of which entered the auricle and the other the ventricle. It was found in this way that two-tenths of the time of the heart's whole pulsation was occupied with the contraction of

the auricles, two-tenths with the contraction of the ventricles, and the remaining four-tenths with the general diastole.

Dr. Austin Flint, Sr., claimed that the jugular pulse was due to the contraction of the right auricle, as well as to that of the right ventricle. That there was an auricular, as well as a ventricular jugular pulse, seemed to be proved by the fact that preceding the contraction of the ventricle (the time of which could be positively determined by the impulse of the heart, the first sound, and the carotid sound), a pulse could be detected in the jugular vein which could be due only to the contraction of the auricle. This, he believed, he himself had been the first to point out.

The paper was also discussed by Drs. Moore and Ross, both of whom opposed the views expressed in the paper, and Dr. Lynde then said that in a large number of cases he had plunged trocars and canulæ into the auricles of dogs, he had never succeeded in getting the blood to come through the instruments; while when the same canulæ were introduced into the ventricle a strong stream of blood invariably flowed through them; which seemed to afford conclusive evidence that the auricles did not contract.

Dr. E. D. Ferguson, of Rensselaer county, read a paper on "The Use of the Aspirator in Hydrothorax." He had seen such bad consequences, such as empyema and death, resulting from the too free use of the aspirator, that he now made it a rule never to use it in this condition except when dyspnœa or other serious symptoms supervened, and when he did resort to aspiration carried the procedure only to a very limited point. Dr. Bowditch had advised that it should not be discontinued until pain in the epigastrium or dyspnœa was produced; but he thought that it should be stopped before the occurrence of these symptoms, which indicated serious difficulty, and that more than a pint of fluid at the utmost should never be withdrawn at a time. Much evil had also resulted from aspiration of the pelvic cavity, in which the greatest caution ought to be observed, and he thought that on the whole the instrument had perhaps done more harm than good in the hands of the profession.

The paper was discussed by Drs. T. F. Rochester, of Buffalo; Flint, of New York; Moore, of Rochester, and Fifield, of Boston, a delegate from the Massachusetts State Medical Society; and Dr. Rochester read a paper on "A New Procedure in Paracentesis Thoracis."

The procedure referred to was the introduction of the finger into the opening and the separation of the ribs in those cases in which the closeness of the ribs prevented the insertion of a drainage-tube. He had used this in these cases with success.

SECOND DAY—EVENING SESSION.

Dr. Gouley proposed a plan for dividing the Association into five sections at its future meetings, and on motion the matter was referred to the Council, with the request that they should report on it at the next annual meeting.

Library in New York.—On motion of Dr. Gouley, a series of resolutions providing for the formation of a library of the Association to be located in the city of New York, was unanimously adopted.

Dr. S. C. Allen, of Rensselaer county, read a paper on "A Case of Diarrhœa from Disease of the Pancreas."

The patient suffered from what the author of the paper termed "adipose diarrhœa," but improved greatly under treatment. The case was complicated with renal disease, and death finally resulted from uræmic coma. No autopsy was permitted.

Dr. T. Gaillard Thomas then delivered the address on Obstetrics and Gynæcology.

Having glanced at the past history of obstetrics, he said that, in his judgment, one of the greatest achievements in modern pathology had been the discovery of the agency of certain micro-organisms, classed under the head of bacteria, in the production of septicæmia, pyæmia and other similar affections. Although the obstetricians of the present day were not prepared to make antiseptic midwifery the rule whenever that art was practiced, it was highly probable that in the very near future this proposition would be accepted. To free the parturient act from the dangers of septic poison would be to save millions of lives in every generation. The germ theory had also revolutionized the treatment of that variety of septicæmia known as puerperal fever. He spoke next of the successful treatment of extra-uterine pregnancy by laparotomy, and lauded the use of electricity before the rupture of the cyst. In placenta prævia and cases of uræmia during pregnancy he advised the induction of premature labor as a sovereign resource. In the obstetric forceps he thought the only real improvements which had been made since the time of the Chamberlins were the additional length and pelvic curve added by Levret and Smellie and the tractors of Tarnier. He concluded this portion of the address with a plea for the adoption of laparo-elytrotomy in preference to the Cæsarian section or Porro's operation.

The brilliant results in gynæcology during the past quarter of a century, Dr. Thomas attributed to the bringing into the service of this department the powerful aid of surgery; although he wished it to be understood that he was a strong advocate for the great advantage of constitutional treatment in diseases of the pelvic viscera of the female. In most of the pathological conditions met with by the gynæcologist, surgical interference was often an essential to cure. Having spoken of the good achieved by Emmet's, Battey's, Hegar's and Tait's operations, he referred to extirpation of the uterus, and summed up by saying that Freund's operation of the removal of the uterus by abdominal section, on account of its difficulties and dangers, was now relegated to the past; while vaginal extirpation had conquered for itself the position of a recognized, legitimate, and even valuable procedure. After alluding to the forcible distension of the uterine canal by a divulsor, or expanding forceps, as a treatment for uterine deformities, he spoke, in conclusion, of four drugs which had recently been introduced into gynæcological practice, viz.: permanganate of potassa and the fluid extracts of the *stigmata* and *ustilago maidis*, of the *viscum album*, and of the *viburnum opulus* and *viburnum prunifolium*.

Permanganate of potash he considered the best emmenagogue which has yet been discovered.

SECOND DAY.—AFTERNOON SESSION.

The following papers were read by title: "Pyæmia and Death After the Operation for Convergent Squint," by Dr. J. J. A. Burke, of Monroe county; "Relations of Habit to Disease," by Dr. C. M. Kittridge, of Dutchess county; "Report of a Case of Nephro-Lithotomy for Calculous Pyelitis," by Dr. F. N. Seymour, Rensselaer county; "Report of a Case of Excision of the Rectum for Cancer," also by Dr. Seymour; "The Practice of Medicine of Fifty Years Ago with Comparative Position at Present," by Dr. B. L. Hovey, of Monroe county; "Notes on Peat as a Surgical Dressing," by Dr. W. S. Tremaine, of Erie county, and "A Case of Ovarian Cyst, with Operation," by Dr. T. M. Lloyd, of King's county.

Dr. Darwin Colin, of Wayne county, read a paper on "Venesection in the Convulsions of Pregnant and Parturient Women," in which he made a strong plea for this procedure, basing his opinion on a large number of cases in the practice of his father and himself, both before the introduction of the use of chloroform, ether, chloral, bromide of potassium and hypodermic injections of morphia.

In the discussion which followed, Dr. Moore, of Rochester, said he believed that recovery in these cases depended on the elimination from the system of the poison which was creating the disturbance, and that nothing was so efficient in doing this as cathartics. Since, however, the patient was liable to die before the latter could have their appropriate effect, anything that would suspend the convulsions for the time would prove of service. Blood-letting undoubtedly did this; but there were other agents which he preferred for this purpose, and the best of all, in his opinion, was ether. The inhalation of this should be kept up unremittingly until either the uterus had been emptied or the bowels had been moved by a purgative.

Dr. Thayer, of Brooklyn, referred to the use of Norwood's tincture of veratrum viride, in teaspoonful doses, as very efficient in controlling convulsions and preventing their recurrence.

Dr. C. C. F. Gay, of Erie county, read a paper on "Fracture of the Base of the Acetabulum."

(TO BE CONTINUED.)

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated meeting Nov. 6, 1884. The President, R. A. CLEEMAN, M.D., in the chair.

Removal of Uterine Appendages for Menstrual Epilepsy Recovery. DR. E. E. MONTGOMERY exhibited the specimens and read the history of the case. Sarah H., æt. 17 years, was admitted to the Philadelphia Hospital, April, 1884. She suffered from an attack of inflammatory rheumatism in childhood and began to have epileptic seizures in her thirteenth year, these were slight at first, but have recurred every month, increasing in number and violence, so that at present she is unconscious from ten days to two weeks out of each month. There has only once been a trace of menstrual discharge and that for a single day only. There is no history of any chronic disease in the family; brothers and sisters are healthy. The patient was pale, flabby, anæmic, poorly developed and extremely nervous. The external genitals were but slightly developed, the uterus small and no special tenderness over the pelvis. Iron tonics and a generous diet were given; the bromides were not well borne. Owing to her youth and the fact that she had not yet menstruated, it was deemed best to undertake to establish the menstrual function and exhaust the antispasmodics before resorting to operative interference. The failure of all remedial measures was complete, and on September 13 the operation was performed; both ovaries and tubes were removed. No antiseptic was used about the wound. All the water used had been well boiled. Absorbent cotton was placed over the wound which had been closed with silk sutures. The operation occupied thirty-five minutes. The recovery was uninterrupted until the night of the 26th of September when she had four epileptic seizures. There were recurrences of slighter attacks during the next three nights, but they were shorter, and during the intervals she was perfectly conscious. During the first four days of October, spells of staring with momentary unconsciousness occurred, becoming less frequent and lighter. A well marked convulsion on the night of Oct. 14 was followed by from one to four convulsions daily until the 29th. But they have not been so severe as before the operation.

Removal of Parovarian Cyst, Recovery. DR. E. E. MONTGOMERY presented the specimens and related the history as follows: Mrs. A., æt. 30 years, native of England, married, never pregnant, has suffered from an enlargement of the abdomen for seven years. As it was first noticed a few months after her marriage she supposed herself pregnant. Her menses have never been interrupted, now occur every three weeks, are very slight, and have never been excessive. She suffers from severe pain the week before menstruation over the lower portion of the abdomen and through the hips. She suffers at other times from pain in the feet and legs and from a sensation of weight. The tumor has been tapped some six times. The fluid was always of a pale straw color. The largest quantity removed at any one time was 40 lbs. The last tapping was on June 27, 1884. She has had four attacks of peritonitis.

When first seen last July, two weeks after the last tapping, the abdomen was swollen and tender to pressure; fluctuation was distinct. Since that time the abdomen has increased considerably in size, presenting a prominent tumor distending the whole abdomen, nearly symmetrical, but projecting slightly to the right side, circumference at umbilicus 32 inches, distance from symphysis to umbilicus 7 inches, to ensiform 13 inches; fluctuation distinct over the whole tumor; coughing projects the whole mass forward and downward. Her general condition is good, she is quite active.

Diagnosis, a Parovarian Cyst, *Plan of Operation* —exploratory incision, remove the tumor if possible,

but if the adhesions were too great to permit that, then to open the sac, stitch it to the integument, and introduce a drainage-tube and thus secure obliteration of the sac.

Operation Oct. 9, abdominal wound 4 inches, adhesions universal, but generally broken up without difficulty, no ligatures were needed. The intestines were not seen, being concealed by old inflammatory deposits. The right ovary was enlarged and was also removed. The wound was closed with seven sutures, and a glass drainage-tube introduced. Salicylated cotton in a thick layer was placed over the wound. Suppositories of morphia were used to control pain which continued to a greater or less extent for two weeks, arising partly from inflammatory conditions and partly from collections of gas in the intestines. The abdominal wound discharged freely, three ounces the first day. The drainage-tube was removed on the 13th, four days after the operation, but the discharge of bloody serum, pus and flaky lymph continued for full two weeks later when the wound closed entirely and the patient was discharged.

Dr. B. F. Baer presented the specimens and read the following report of a case of *Placental Polypus which simulated malignant disease of the uterus.* The patient was 35 years of age, married and had two children at full term, the last twelve years ago. She has had several abortions since, but otherwise she has enjoyed good health, Her mother died at the age of 38 of cancer of the uterus. In the early months of this year our patient first noticed that her catameniæ were becoming too frequent and were attended with expulsive pains and a fetid watery discharge in the intervals. The blood loss increased in quantity and she soon began to show signs of failing health in pallor and loss of flesh. She would not permit a physical exploration until the latter part of July, when she had a violent flooding with great pain. *Examination* now revealed to Dr. R. Armstrong, of Lockhaven, Pa., whose patient she was, a healthy condition of the cervix and a normal os, but the body of the uterus was enlarged to more than double its natural dimensions, it seemed to be symmetrical and rather softer than usual. The hæmorrhage was controlled by ergot and rest. Although the grumous fetid discharge and the uterine tenesmus continued, she did not have another severe attack of metrorrhagia, probably because of her exsanguine condition and the fact that she was suffering from septic absorption. Her temperature rising as high as 104° in the afternoon, she had distinct rigors. Her abdomen was tympanitic and very tender to the touch. The physical condition of the uterus led the doctor to introduce two tents into the cervical canal on Sept. 23. They were allowed to remain 24 hours although their presence increased the violence of the symptoms. When the tents were removed, a rather soft friable mass could be felt presenting at the internal os. This led to a fear that the disease might prove to be malignant. A severe colliquative diarrhœa now set in and the patient's strength became so much reduced that nothing could be done except to administer remedies to check the diarrhœa and to prevent collapse. On the morning of the 25th, through the kindness of Dr. Armstrong, I saw the patient, temperature 103°, pulse rapid and weak, stomach irritable, rejecting everything taken, bowels still quite relaxed. Her face presented the livid hue of malignant disease. The outlook was not favorable for an operation which would necessitate the dilatation of the cervix sufficiently to remove the diseased tissue which evidently occupied the uterine cavity, but it was the only course to pursue. Ether was administered. The uterus was found retroverted and adherent to the floor of Douglas's cul-de-sac. The cervix was rigid and but slightly patulous In view of existing peritonitis we concluded that it was best that I should endeavor to remove the contents of the uterus without a further attempt at dilatation, fearing rupture of adhesions and increased inflammatory action, I passed the wire loop of the écraseur through the os, and by careful manipulation luckily succeeded in guiding it over the tumor and up to its attachment. Drawing upon the wire it closed around the pedicle and severed it. The tumor was seized with a vulsella forceps and delivered. The index finger could not be passed into the cavity of the uterus. The pedicle was situated on the posterior wall near the fundus. The tissues at that point were soft and friable, but the remainder of the surface of the uterine cavity appeared to be free from disease. The stump was cauterized with nitric acid, and a two-grain opium suppository placed in the rectum. Convalesence was rapid and satisfactory.

On section and close examination the specimen very much resembles placental tissue, and the microscope shows typical placental villi in its structure. It is the *placental polypus* described by C. Braun in 1851, and somewhat resembles the *fibrinous polypus* of Kiwisch who thought that these polypi might arise from long persistent hæmorrhage, a kind of apoplexy of the womb, a large coagulum forming, the upper part consisting mostly of fibrin and adhering by a stalk to the uterine wall, whilst the lower consists of red, soft coagulum having a coat of firm fibrin. Scanzoni does not admit this view. He contends that these are cases of abortion and would therefore fall under the class of placental polypi (*Barnes*). My own experience agrees with that of Scanzoni. These polypi cause profuse metrorrhagia and sometimes, as in this case, blood poisoning.

This case furnishes another strong argument in favor of the entire removal of the decidua or placenta after abortion. Who can tell how many lives are lost or in how many cases the health is undermined by a neglect of this procedure? Death would inevitably have occurred in this case if the uterus had not been emptied. The patient may suffer for months or years as a result of neglect. In this instance the fault was in the patient, for she had been properly advised by her physician. It is true that many cases escape without serious injury, but that does not prove that the principle and practice of immediate removal is not always the safe one, for here is a case where a neglected abortion had apparently passed off safely, but it almost destroyed the patient's life a long time afterward.

Malignant disease was properly suspected from the

rapid development of such grave symptoms, from the general cachectic appearance of the patient and from the sensation conveyed to the finger when touching the growth *in situ*. But when it was found that it had a limited point of attachment and that the uterine cavity was healthy at all other points this hypothesis was weakened, and when more careful examination of the specimen and investigation with the microscope showed it to contain placental villi, its benign character was assured.

DR. MONTGOMERY remarked that in cases in which partial dilatation of the uterine canal had been accomplished before the patient presented, the best instrument to continue the dilatation is the mechanical urethral dilator of Dr. A. H. Smith.

HAIR-PIN IN THE UTERUS.

DR. B. F. BAER exhibited a hair-pin removed from the uterine cavity of a patient sent to him by Dr. Pancoast, of Camden, N. J. The woman believing herself to be pregnant had tried to produce an abortion by inserting the pin by grasping the points and inserting the blunt end. The patient had obtained a view of the parts in a mirror placed upon the floor. The presence of the pin was readily detected by the uterine sound. He at first thought of dilating with tents, but, the patient being greatly alarmed and very importunate, he used the steel dilator. One point of the pin became imbedded, in its descent, in the tissues of the cervix and required dissection to release it.

DR. WHARTON SINKLER exhibited a hair-pin removed from the vagina of a patient who had tried to introduce it into the uterus to produce abortion. She had failed in her purpose and had also failed to remove it from the vagina. The doctor found the points of the pin widely separated, presenting downward and hooked into the walls of the vagina. By bringing the points close together the pin was removed without difficulty. It had been in the vagina for some time.

DR. MONTGOMERY stated that, while a student, he had seen a hair-pin removed from a vagina. It was thickly incrusted with a calcareous deposit.

FOREIGN CORRESPONDENCE.

PARIS LETTER.

PARIS, November 7th, 1884.

Dr. Régis, of Bordeaux, read a very interesting paper at the meeting of the Association Française pour l'avancement des Sciences, lately held at Blois, on the heredity of general paralysis. During a service of three years as interne at the Sainte-Anne Asylum, 318 cases of general paralysis were brought under the author's notice, and the following are the conclusions taken from his observations: Mental disorder or insanity is almost never found amongst the ancestors of a patient suffering from general paralysis, whereas cerebral affections are frequent. This immunity is found equally among the descendants of general paralytics. These descendants are, in general, normally constituted, and if there is anything remarkable about them, it is their superior intelligence rather than their intellectual or mental inferiority. The comparative study of heredity in general paralysis and in insanity teaches that, contrary to the opinion of some authors, these two affections are not branches of the same family, and that they are incapable of engendering each other mutually. The practical deductions accruing from this fact are most important. A physician consulted about the future of the child of a general paralytic subject may now reply with some assurance that such a child is not necessarily predisposed to insanity, that all that is to be feared, by predisposition, is cerebral affections, and consequently the two critical periods of life, viz.: infancy, when there is a great tendency to cerebral accidents; and mature age, when cerebral paralysis, and even general paralysis, are more common. Moreover, if the physician is consulted as to the propriety of marriage with the offspring of a general paralytic subject, the answer may be in the affirmative, as this affection does not predispose to insanity.

A note from M. Lailler was lately read at the Academy of Sciences on the elimination of phosphoric acid in insanity and in epilepsy, and the following is a summary of the results of his investigations:

1. In acute delirium, in acute mania, there is a notable excess in the elimination of phosphoric acid and of urea.

2. In mania with excitement, the elimination of phosphoric acid is slightly in excess; that of urea is normal.

3. In simple mania, the urine is in a physiological state.

4. In lypemania, in its acute state, or when accompanied with excitement, there is a notable increase of the elimination of urea, and a rather slight elimination of phosphoric acid.

5. In lypemania without excitement, the quantity of phosphoric acid and of urea eliminated does not exceed that of the normal state.

6. In general paralysis the excretion of phosphoric acid and of urea is in relation to the numerous morbid states which characterize this form of mental disorder.

In epilepsy, the urine, during the paroxysms or immediately after, contains a proportion of phosphoric acid notably superior to that of the average, and a feeble proportion of urea; when the paroxysms succeed each other rapidly, there is an increase of phosphoric acid and of urea; in the intervals between the paroxysms the urine is normal.

In his thesis for the doctorate, Dr. Blanc spoke in the most favorable terms of the treatment of acute abscesses by the injections of alcohol, which he observed in the wards of Professor Gosselin, at La Charité Hospital. The mode of procedure is as follows: The abscess having become soft and fluctuation evident, a puncture in preference to an incision is made. The matter is then gently squeezed out, and

about 60 centilitres, or about a pint of alcohol of 90 degrees, is injected into the cavity. The alcohol is then pressed out with the matter with which it may be mixed up, and another injection of the same quantity of alcohol is made, which is allowed to run out freely. The wound and the exterior of the abscess are then dressed with camphorated spirits or ordinary alcohol. If, on the following day, the suppuration has not stopped, another injection is made, and then a third, or even a fourth, according to the size and state of the abscess. A rather severe pain follows, and lasts for about a quarter of an hour after the injection; the site of the abscess and the parts in its neighborhood become hard and inflamed by the injections. But these phenomena disappear in a time proportionate to the size of the abscess, which is completely healed in from four to six days after the last injection. Dr. Blanc explains the *modus operandi* of the injections thus: The alcohol has a double action; it destroys the pus already formed, and prevents its reproduction by acting on the capillaries of the parietes of the abscess, and in provoking the secretion of plastic lymph and consecutive adhesion.

Dr. Taillefer, of Châteauneuf, in washing out the stomach of one of his patients by means of a syphon formed with an India rubber tube and a funnel, had the idea of employing the same means for washing out the bladder of another patient whom he had under treatment, but in whom he had till then employed a more complicated process with a double catheter and a syringe for the same purpose. The advantages claimed for this method are simplicity and inexpensiveness. All that is required to be purchased is an India rubber tube of about 60 centimetres long. A funnel is found in every household. This dispenses with the syringe and the double catheter. To cleanse the bladder, Dr. Taillefer begins by emptying it with an ordinary catheter, he then applies the extremity of the India rubber tube to the catheter without removing it from the bladder. He fills the funnel which is held rather below the level of the bladder. He then raises the funnel in order to allow the liquid to enter the bladder, and then lowers the funnel to let the liquid run out. In this way the patient is saved the pain which is sometimes caused by the adapting of the pipe of the syringe to the orifice of the catheter. A. B.

BERLIN LETTER.

BERLIN, GERMANY, Oct. 22, 1884.

MR. EDITOR:

Since my last letter from Copenhagen, I have been secluded in the quiet little German town of Weimar, which is celebrated as having been the home of the most celebrated German poets, Goethe and Schiller, as well as of Herder and Wieland.

I had hoped, on my return to Berlin, to be able to give you at once a letter about the Royal University; but I find it impossible at present, because there is a great difference between the customs here and ours. Although the University nominally opens on a certain day, the 16th of October, yet in reality the professors commence their lectures whenever they please, at times varying from the middle of October to the first week in November, so that, as yet, the University is not in working order.

Last Monday, October 20, a great feast was given in the evening in the "Central Hotel," in honor of Prof. Dr. Rudolf Virchow, who is a member of the Reichstag, and who has been a city official for twenty-five years. The great hall of the hotel was completely filled with ladies and gentlemen, and was handsomely decorated with flags, a pleasant feature being a bust of Prof. Virchow in the middle of the hall, very tastefully decorated. There were two excellent musical concerts, interluded by speeches, and followed by a dance which lasted until the small hours.

There is a report that a certain German doctor has succeeded in producing cholera in rabbits, and that his bacilli have been submitted to Prof. Koch, who admits that they are indeed "comma bacilli," and that he is now testing them by cultivation, to see if they are identical with his "comma bacilli." If it amounts to anything, and we have an authentic report, I will inform you at once.

Since the meeting of the International Medical Congress at Copenhagen, Denmark and its capital city have become much more thoroughly known, and the various people who have listened to the reports of the wonderful hospitality of the Danes in general, as well as those who had the honor to be their guests, will sincerely regret the destruction by fire on the 3d inst. of the beautiful palace called "Christiansborg," of the King of Denmark, where he and his queen so handsomely received and entertained the members of the Eighth International Medical Congress, August 15. Many works of the most celebrated of Northern European artists, Albert Thorwaldsen, were destroyed, but the Thorwaldsen Museum, which contained the most of his works, and which adjoined the palace, although severely threatened, was saved.

I am sure that all members of the Congress would have been glad to add their signatures to the following address which, signed by sixty-four members, was forwarded to the King of Denmark.

"*To His Majesty Christian IX, King of Denmark:*

"May it please your Majesty:—We, the undersigned, English, Scottish, and Irish members of the International Medical Congress, lately held in Copenhagen, desire very respectfully to offer to your Majesty the expression of our profound regret at the destruction of the grand and beautiful palace of Christiansborg. We very gratefully remember the honor conferred on us in that palace, where we were received and entertained with splendid and graceful hospitality by your Majesty and the members of your Royal Family. The recollection of that reception and of all the proofs of welcome which were shown to us in the City of Copenhagen, impels us to offer, and to hope that your Majesty will graciously accept, this assurance of our sorrow for the loss which your Majesty and Denmark have sustained." N.

DOMESTIC CORRESPONDENCE.

ANSWER TO DR R. W. SUTTON.

72 LAFAYETTE AVE., DETROIT MICH., November 18, 1884.

TO THE EDITOR.—*Dear Sir:* In your issue of 15th inst., Dr. R. S. Sutton invites me to recall a fatal case of ovariotomy in my practice which occurred at Lansing, Mich., in January last, and of which he claims to have in his possession a certificate of death. In reply I must absolutely decline any such invitation, and must say to Dr. Sutton that any such certificate is either a gross blunder or a wicked forgery. *The simple fact is that I have never in my life performed ovariotomy at Lansing nor upon a Lansing patient any where at any time.* In the face of Dr. R. S. Sutton's repeated assaults upon my reputation for truth and veracity, I hope that I may be allowed to say here that if anything could exceed the grotesqueness of that gentleman's frantic efforts to advertise himself and his abdominal hospital it is his unwavering interest in me and my sayings and doings.

As might be expected, these devoted attentions on his part have led me to make some slight notes of Dr. Sutton. While I think that I can candidly disclaim everything like wrath, malice and envy, at the same time I must confess that the results of my study of Dr. Sutton's peculiar idiosyncrasies have not been agreeable nor flattering to that gentleman. In fact, sir, there seems to me to be strong reasons for suspecting that your Pittsburgh correspondent will have to be classed with those unfortunates who are said to have "lost the chart and missed the reckoning of rationality." This is the most charitable explanation of his persistent efforts to involve me in unnecessary and unseemly strife.

One word more; within a few days I propose to place on record some further facts and figures relative to my own recent experiences with ovariotomies performed in public amphitheatres in presence of hundreds of students, and in "cottages by the way-side," from which I venture to hope that some considerable comfort and encouragement may be extracted by that large and honorable class of American surgeons, who do not hesitate to give the poor sufferer from ovarian disease the only possible chance which remains for her life, even although a special abdominal hospital and a *special abdominal operator* are beyond their and her reach, and even although they in their scientific modesty do not aspire to compare even their highest efforts with the tender mercies of "The Almighty," as Dr. Sutton audaciously did before the Obstetrical Section at Washington.

I am, etc., DONALD MACLEAN.

BOOK REVIEWS.

MANUAL OF CHEMISTRY. By W. SIMON, PH.D., M.D. Philadelphia: H. C. Lea's Son & Co.

This book is intended for medical and pharmaceutical students, and seems to be up to the average of works compiled for the same purpose.

A novel feature of the book is found in the plates colored to represent the precipitates formed in various qualitative tests, and it is possible that these plates may be of use to students who have not the opportunity of doing laboratory work.

The *questions* at the end of each chapter might be in place in a grammar school text-book, but in a manual intended for colleges the propriety of appending them is much to be doubted.

A TREATISE ON PHYSIOLOGY AND HYGIENE. By JOSEPH C. HUTCHINSON, M.D., LL.D. New York: Clark & Mayard. 1884. Cloth, illustrated, 319 pages.

This school text-book has all the faults common to that class of literature. Some of the illustrations are simply for embellishment, and the text is often faulty. Besides its minor errors it has one positive evil. The lists of questions at the foot of each page and end of each chapter tempt the teacher to rely on the text-book and the parrot-like memory of the pupil rather than on a clear explanation and demonstration of the subjects taught and the due appreciation of those subjects by the student's higher mental faculties.

SURGICAL DELUSIONS AND FOLLIES. By JOHN B. ROBERTS, A.M., M.D., Professor of Anatomy Philadelphia Polyclinic, Surgeon St. Mary's Hospital. Philadelphia: P. Blakiston. Pp. 56.

This is a clever address which the author delivered before the Medical Society of the State of Pennsylvania. Without professing to go deep into scientific questions, he discusses here many minor superstitions and errors which cling about surgical practice, much in the spirit of the immortal author of "DON'T." It is doubtless true that in the routine of minor surgery more absurd and antique delusions are still in vogue than in most modern specialties. It is also true that some good physicians, who do only occasionally any surgical work, are the most hide-bound in their prejudices, and need a thorough shaking up before they will let go old notions and adapt their surgery to the present day. This little volume is both suggestive and profitable to all who look over its pages. E. W. A.

THE EAR: ITS ANATOMY, PHYSIOLOGY, AND DISEASES. By CHARLES H. BURNETT, A.M., M.D. Second edition, revised and re-written. Calf. 585 pages, 107 illustrations. Philadelphia: Henry C. Lea's Son & Co.

The author, in the second edition, has evidently spared no pains both by careful compilation and original research, to bring the work fully up to date. The part on diseases and treatment is arranged under seven sections, considering first the examination of the patient, then the various diseases according to their anatomical location, and lastly a section on the methods of relief and education of deaf mutes and partially deaf children.

C. E. W.

A Manual of Dermatology. By A. R. Robinson, M.B., L.R.C.R. & S., Edin. New York: Bermingham & Company. Cloth, 647 pp., illustrated. Price, $5.00.

This admirable work commends itself to the student and practitioner by its clearness of style, its orderly arrangement, and its full and explicit directions respecting treatment.

There is a marked resemblance among modern text-books of dermatology, and while this evidently belongs to the common species, it presents marked individual characteristics. The study of the cutaneous diseases affords an opportunity to follow the minute details of the morbid processes from the commencement of the attack until its termination in resolution or permanent lesion. The author has taken advantage of this opportunity and gives his readers an insight into the histology of many of the diseases considered.

We sincerely hope that he will prosecute his plan of a more voluminous and original work, but, however necessary that may be to the specialist, we feel assured that the present publication will fully meet the needs of the general practitioner. C. E. W.

Transactions of the Colorado State Medical Society held in Denver, June, 1884. Paper, 155 pages with eight climatic charts.

These transactions show a commendable activity on the part of the profession in Colorado.

A paper by S. E. Solly, M.D., on the influence of the local climate on Bright's disease presents as its chief physiological points, the fact that the urine in that dry region is somewhat concentrated, and as its conclusions "That acute nephritis is not especially induced by the climate, but having arisen, is in its onset aggravated by it," and respecting chronic nephritis, that the tendency of the climate is toward its cure. He does not consider that either of these propositions is fully established.

The climatic charts, two for each of the four seasons of the year, 1882, show respectively the absolute humidity in grains to the cubic foot of air and mean cloudiness in tenths, for the whole country. They are issued by the society and published at its suggestion and expense by the war department and should be seen to be appreciated.

Their most salient features are given in the following quotation from the report of the society's committee: "The extremes of dryness and moisture as indicated by this actual humidity are about as follows for the different seasons. The elevated western interior as compared with Florida and the extreme south of Texas, has one-fourth as much atmospheric vapor in spring, one-third as much in summer, and one-fifth as much in autumn, as the latter, while in winter the central portion of the country from Denver north and northeast has less than one-sixth the actual humidity that exists in the moistest portions of the south (Florida)."

The sunniest portion of the United States for the whole year, is the eastern parts of Southern and Middle California, from Red Bluff south, taking in the Death Valley, where there is less than one-tenth of cloudiness, while the cloudiest section of the whole country is in the Ohio Valley and great interior lake region, when over seven-tenths of the time there is cloudiness during the winter. It is in winter that the greatest contrast is to be noticed between the elevated interior and southwestern sections on the one hand, and the whole eastern half of our country and the northwestern corner on the other hand, bringing out into merited prominence for sunshine and as winter homes for invalids, the eastern central portion of Colorado, and much of New Mexico, Arizona and Southern California."

M. H. Sears, M.D., discussed the treatment of morphine poisoning and recommended the intravenous injection of milk. In both of the written cases which were of a desperate character, the injection was followed by improvement in the symptoms and in one case by recovery. In the successful case the patient was a male, eight ounces were injected in about 15 minutes. Some blood was allowed to escape before the milk was injected. C. E. W.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland. Eighty-sixth Annual Session. Held at Baltimore, Md., April, 1884.

This contribution to medical literature contains very little trash. In glancing over its pages the following items have attracted our attention.

The recommendation of C. W. Chancellor, M.D., respecting the sanitary needs of the poor, expresses the hope that in time the laboring classes may be in possession of better dwellings, and recommends means for securing this and other desirable results.

A paper on "Preventable Blindness," by Samuel Theobald, M.D, particularly cautions the profession respecting the several varieties of ophthalmia, including sympathetic, and glaucoma.

F. Donaldson, M.D., respecting the influence of lung retractility, concludes that it is "not only a powerful physiological force in respiration, but that it also produces modification of a decided character in diseases of the chest." This latter is of particular importance in making a physical diagnosis.

C. E. W.

The Elements of Physiological and Pathological Chemistry. By T. Cranstoun Charles, M.D., Philadelphia. H. C. Lea's Son & Co.

For years Germany has taken the lead in the advanced study of the purely scientific branches of medicine, and the laboratories of the great universities have pushed research to an extreme scarcely possible anywhere else. The names of the men at the head of these laboratories have drawn students from all parts of the world, and these students, returned to their homes, have made the works of their teachers almost as well known there as in Germany itself.

This influence first showed itself in the translations of leading German manuals, followed in time by original works formed on German models, and embracing the results of German experience.

In physiological chemistry the books of Hoppe-Seyles, Kuchne and Gorup-Besanez have been our best authorities, and any one pretending to accurate

knowledge on the subject has been obliged to consult them.

It is an encouraging sign of the times that a book with the above title has appeared in English and that an American edition has also been issued.

In these Elements of Physiological and Pathological chemistry, Dr. Charles has given us a most excellent text and reference book. It does not in the least detract from its merits to say that throughout one perceives the influence of Hoppe-Seyles, for to successfully follow such a master is in itself no slight honor.

The volume of 450 pages is divided into four parts or books, treating of Nutrition and Foods; Digestion and the Secretions Concerned; the Chemistry of the Tissues, Organs and remaining Secretions; and the Excreta. Each book is subdivided into chapters, of which, in all, there are 98.

The information contained in these chapters is accurate, and embraces the results of the latest researches in the several departments. Methods of analysis are quite fully given where necessary, and numerous tables show the results of examinations of tissues, digestive fluids, excretions, etc.

The book can be recommended to any one wishing to obtain a clear idea of the present state of physiological chemistry.

ILLUSTRATIONS OF THE INFLUENCE OF THE MIND UPON THE BODY IN HEALTH AND DISEASE. Designed to elucidate the action of the imagination. By DANIEL HACK TUKE, M.D., F.R.C.P., LL.D. Second American from the second English edition. Philadelphia: Henry C. Lea's Son & Co. Cloth. 482 pages.

The plan of this work is sufficiently set forth in the following, from the introductory chapter:

"Psychologically, we intend to indicate, by the title we have adopted, the design of illustrating by a considerable collection of striking cases the often admitted, but too frequently forgotten, and still more frequently neglected truth, that the state of the mind, comprising therein intellect, emotion, and volition, exerts an enormous influence for good or evil upon the body with which it is associated,—including in this term all sensations, movements, and the organic functions."

The author has carefully carried out this plan, and we have presented a mass of systematically arranged material, much of which is certainly striking enough, but some of which is of little scientific value.

Quotations from the daily press and the literary classics are very useful as embellishments, but hardly serve as sufficient data for the establishment of scientific laws. In the material collected from medical sources conditions of healthy emotion and organic disease are frequently associated in such a way as to confuse the careless reader.

In the pursuit of a subject like that selected by our author, which deals with matters extraordinary, more than usual care is necessary. Nervous patients exaggerate their symptoms. The excited attendant exaggerates his report of the case. The studious compiler arranges his material in such a way that the ardent student, led on from simple matters to those more marvellous, is deluded as to the actual attributes of that most important of all organic phenomena, the mind, and in his turn becomes the victim of a self-propagating delusion.

Such a work should consist of a demonstration of the relations of the mind to the body in individuals who are organically sound; a consideration of these relations as affecting organic disease; and lastly, a consideration of environment and association as affecting mental conditions favorably or unfavorably, thus influencing the health of the individual. Thus we would have the physiology, pathology, and therapeutics of the mind. Such a work will require the greatest care and skill in its preparation.

The present volume contains enough of value to be of service to the careful reader, but falls far short of ideal perfection.

C. E. W.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM NOVEMBER 15, 1884, TO NOVEMBER 21, 1884.

Cowdery, S. G., Captain and Assistant-Surgeon, granted leave of absence for one month. (S. O. 237, Dept. East, November 17, 1884.)

Havard, Valery, Captain and Assistant-Surgeon, granted leave of absence for four months, (permission to go beyond sea) to take effect when his services can be dispensed with at his present station. (S. O. 268, A. G. O., Nov. 14, 1884.)

Phillips, Jno. L., First Lieutenant and Assistant-Surgeon, assigned to duty at Fort Keogh, M. T. (S. O. 134, Dept. Dak., Nov. 5, 1884.)

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY DURING THE WEEK ENDING NOVEMBER 22, 1884.

Ames, Howard E., Passed Assistant-Surgeon, detached from the Greely relief steamer Bear, and assigned to special duty in New York, Nov. 17, 1884.

Bright, George A, Surgeon, detached from the Galena and placed on waiting orders, Nov. 19, 1884.

Cleborne, C. J., Medical Inspector, to duty at Philadelphia, Pa., as member of Medical Examining Boards, Nov. 21, 1884.

Du Bois, F. L., Surgeon, when detached from the Naval Examining Board, Nov. 29, is ordered to the Galena, Nov. 20, 1884.

Green, Edward H., Passed Assistant-Surgeon, detached from the Greely relief steamer Thetis, and assigned to special duty in New York, Nov. 17, 1884.

Hall, J. H., Surgeon, detached from Navy Yard, Mare Island, and assigned to duty at the Naval Hospital at that yard, Nov. 19, 1884.

Hugg, Joseph, Surgeon, to the Minnesota as relief of Surgeon Wolverton, Nov. 15, 1884.

Martin, William, Assistant-Surgeon, to special duty in connection with the New Orleans Exposition, Nov. 19, 1884.

Nash, F. S., Passed Assistant-Surgeon, detached from the Greely relief steamer Alert, and assigned to special duty in New York, Nov. 17, 1884.

Simon, W. J., Surgeon, to the Philadelphia Hospital for treatment, Nov. 17, 1884.

Wolverton, T., Surgeon, detached from the Galena, and placed on waiting orders for sea service, Nov. 15, 1884.

THE

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EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. III. CHICAGO, DECEMBER 6, 1884. NO. 23.

ORIGINAL ARTICLES.

CONSERVATIVE PROGRESS.

FIRST ANNUAL ADDRESS TO THE NEW YORK STATE MEDICAL ASSOCIATION, DELIVERED IN NEW YORK, NOVEMBER 18, 1884.

BY HENRY D. DIDAMA, M.D., PRESIDENT.

The advance of science is hindered not more by obstinacy than by fickleness.

The skepticism which uses an honest crucible is a blessing; the skepticism which wields a club, and smashes old things indiscriminately *because* they are ancient, is a curse. Underneath its destructive malice is often a credulous and craven tenderness for anything which is new.

One face of Janus was emblematic of Memory, and looked benignly upon the past, with its garnered treasures; the other represented Hope, and peered eagerly into the rich possibilities and promises of the future. These faces were not mutually inimical; they were complemental; they were unity in diversity.

In medicine, bigotry and laziness sometimes call themselves conservative; opposed to these are discontent and love of novelty, which may assume the label progress; but genuine progress and enlightened conservatism work harmoniously together to perfect medical science. The one patiently tests all things; the other holds fast that which is good.

In medicine much is worthy of conservation; not a little is still moot; research is very active and confident; vast fields await exploration. Your attention is invited to a few illustrations and suggestions.

In *Pathology* the predisposing causes of disease are fairly well known by long and careful observation; but in the dazzling field of the microscope they are apt to be forgotten.

Inheritance, acquired vices, insufficient or improper or excessive food and drink, vitiated air, deficient sunlight, exposures, indolence, overwork, worry, these are predisponents which act by so impairing the resisting power that attacking foes of feeble potency are able to gain an easy victory.

Many diseases, such as eruptive, contagious and malarial fevers; pneumonia, consumption, erysipelas, septicæmia, pyæmia, and even suppuration are now quite generally regarded as the work of micro-organisms—the *contagium vivum*.

The doctrine of germs is essentially modern; although Harvey is thought to have had glimpses of its truth more than two hundred years ago. But Harvey never regarded germs as living particles, capable of prolific multiplication. He considered the emanations from a certain disease able—by what he called a seminal influence—to propagate the same disease in a healthy person.

The witty Jonathan Swift, in the early part of the last century, described a microscopic specialist whose enthusiasm is hardly eclipsed by the zeal of any modern observer. He had discovered worms in the flesh of certain diseased animals, and he published an account of his observations. His paper attracted some attention and received favorable comment. Inflated with flattery and vanity, the now famous discoverer continued to use his lens, and forthwith published the startling announcement that worms are the fountain and origin of all diseases.

In the present germ excitement—analogous to the gold fever of 1848 and the petroleum craze of later years—we are not to ignore other and well-established causes. We encourage the search for new *microzymes*—as we do prospecting for gold and oil;—we watch intently each promising indication; but we prudently reserve our credence and wait for verifications of alleged discoveries; knowing that some observers have that keen vision pointed out in the couplet:

> "Optics sharp it needs, I ween,
> To see what is not to be seen."

We not only braid fadeless chaplets for the modest brows of those who unearth a new *bacillus*, whose pedigree can be established beyond question; but we bestow our admiration upon those ingenious philological microscopists, who, if they cannot diagnosticate hereditary diseases by the physiognomy of the blood corpuscle, are yet able to invent some magnificent name for the minutest pest which infests the human organism.

We urge that investigation cannot be too extensive and thorough; but we counsel that there be no premature rushing into print with generalizations; lest the observations shall turn out illusory; lest alleged causes shall prove to be but unimportant coincidences.

The reward for patient work may be slow in coming, like the flour from the mills of the gods, but it will be of excellent quality at last.

If he is worthy of national gratitude who makes two blades of unnecessary grass grow where but one had a feeble struggle for existence before, how much

more deserving of temporary immortality is he who establishes his claim to a new pathogenic *cacozyme*, be it *bacillus* or *micrococcus* or *spirillum;* especially if he can tell us what to do with it.

The specific micro-organisms of tuberculosis and splenic fever and—perhaps—cholera, have been differentiated; those of miasmatic diseases, seen as the *palmella* in Ohio by a genius of sharp optics, and as the *bacillus malariæ* by Italian observers, remain to be verified. There should be little doubt of their existence, notwithstanding the incredulity recently expressed by an eminent writer who still pins his faith to the ancient notion that a poison is generated by decomposing vegetation. For while a living and developing organism will account for all the facts of origin, incubation, and behavior of miasmatic fevers, a dead poison is quite unsatisfactory and insufficient.

But the germs which cause scarlatina, measles, pertussis, etc., have thus far eluded search. It is still an undecided question whether croupous pneumonitis be a germ fever, with a local expression.

The suggestions of our eminent friend and associate, who called attention to this point several years ago, are entitled to, and are receiving, consideration throughout the world. Continued observations are still needed to confirm or overthrow the proposition.

In *Therapeutics* conservative progress finds an ample field. To prevent; to guide to a favorable termination, when prevention has been neglected; to alleviate, when recovery is impossible; to delay the inevitable escape of the soul from its weary prison; these are the important duties of the physician.

A thorough knowledge of the composition and structure of the body, and of the relation of parts, is indeed of great importance. The action of organs in health, and their perverted action in disease, rightly demand the most careful study.

The foes which boldly attack the citadel of life, and the occult influences which insidiously undermine and sap the vital forces; these may well engage our earnest attention.

The fascinating analysis of our secretions and excretions, of our foods and medicines and poisons, deserves all the consideration which it receives.

The innumerable instruments of precision, which promise to substitute mathematical accuracy for vague guess, and which are too often used not to supplement but to supplant other and valuable methods of investigation, these, like the tribe of Abou Ben Adhem, will continue to increase, till they become multitudinous—if not perplexing—like the grasshoppers of the West; these rightfully challenge recognition and study, while with unappeasable appetite, they devour our substance if we attempt to add them all to our armamentarium.

But anatomy and histology, physiology, pathology and chemistry, etiology, diagnosis and prognosis; the possession of all the scopes, all the graphs, and all the meters, and the familiar and dextrous use of them; all these, interesting as they may be to the scientist, important and indispensable as they may be as preliminaries, foundations and aids to medical skill; all these are practically worthless except as they contribute to the relief of human suffering.

"The real physician," says Broussais, "is the one who cures; the observation which does not teach the art of healing is not that of a physician, it is that of a naturalist."

And, paraphrasing Sacred Writ, it may be added, there remaineth therefore pathology, diagnosis, therapeutics, these three; but the greatest of these is therapeutics.

Therapeutics, then—which includes all means to prevent and manage disease—being the superstructure to which all medical ologies are but foundation stones and adornments; the very fruitage of the tree of life; the sole beneficent application of all medical science, its importance to humanity, and therefore to the physician, cannot be overestimated.

Efforts to elevate the standard of medical requirements are worthy of commendation. Owing to the fierce rivalry of schools and the facility with which incompetence secures its diploma, it has been deemed very important, by many reformers, to have the licensing power placed in the hands of an independent Board of Examiners.

Should such a Board be constituted, it may properly require a thorough preliminary training; it may be so comprehensive in its demands, and so vigorous in its examinations that no one guilty of ignorance regarding the fundamental branches of medical and other cognate sciences shall be able to gain admission to the ranks of a noble profession.

But if, in these exalted demands and these exacting examinations, therapeutics be ignored or belittled; if therapeutics be not elevated to the highest position and regarded as the one thing needful; the very vital principle without which everything else is but dead and useless science, and with which alone the physician does all his skillful deeds of benevolence; then the ordeal to which the candidate is subjected is delusive and beggarly. It may even deserve reprobation.

The object of a Board of Examiners should be to protect the community from the ravages of additional incompetency. Its action must of necessity be prospective. It cannot hope to uproot a professional ignorance, which, associated with length of years and engaging manners, has become popular and almost sacred. But it can determine the minimum amount of knowledge which must be possessed by every candidate who shall gain admission to the medical fraternity. If its examinations shall be comprehensive and searching, and at the same time not so narrow and technical as to regard an error in orthography less excusable than a gross blunder in meddical practice, it may accomplish its good purpose.

But if it tithes, rigorously, the mint, anise and cumin, and neglects the weighter matters of applied medical science; if it shows partiality; allowing Vitreus Ceruleus, who believes the radiance which filters through blue glass to be the only and omnipotent remedy for all diseases; and the gushing Aquarius, who dotes on and swears by magnetized spring-water as a panacea; and the innocent Credulus who puts all his faith in faith alone; and the oily and

plausible Sinbad, who pretends to be under the guidance of disembodied spirits; if the Board allows these to shirk entirely the examination in therapeutics and materia medica to which plain, unpretending Medicus—who recognizes the importance of these sciences—is subjected; then when it puts these five on the same high level before the public, giving each the same indorsement and the same license, it inflicts a wrong on Medicus; places an unnecessary and useless burden on Ceruleus, Aquarius, Credulus and Sinbad; and perpetrates a fraud on a confiding and misled community.

To serve the public wisely and well, the Board should subject every applicant, whatever his callow crotchets, or prejudices or intentions may be, to the same examination in every branch of medical science, as understood by the vast majority of the profession. Possessing the learning requisite to pass this examination, and endowed with his credentials, the tyro should be at liberty to adopt and practice any special delusion or idiocy which his fancy may indicate, or the credulity of the public make profitable. For as he can never entirely divest himself of his useful knowledge, the community will have all the protection it is possible for an Examining Board to furnish.

Some of the general principles of theraputics are worthy of the most careful preservation. Many of the measures employed in preventing and stamping out various so-called zymotic diseases are fairly successful; and constant research is adding largely to their numbers and potency. The importance of iodine and mercury in certain diseases; the palliative and curative effect of opium in a variety of complaints; the efficacy of Peruvian bark in miasmatic affections; the desirability and possibility of preventing and subduing high temperatures in fevers and inflammations; the wonderful results secured by certain heart tonics; the neutralizing and eliminating measures which have shortened the term of rheumatism from six weeks to six days; the undiminished power for good of ferruginous preparations in suitable cases; the occasional utility and even saving power of the once abused and now as much maligned venesection: these are merely samples of therapeutic principles and practice, whose truth is attested by countless, critical, level-headed observers throughout the whole world.

New discoveries in etiology, pathology and materia medica will modify our views and constantly increase our ability to overcome disease. They will show us when to interfere actively and when to watch and wait. And while we hold fast to well-founded principles of treatment and to remedies whose adoption has been tried, we give a hearty welcome and testing to every new measure, to every new medicine, which has a satisfactory indorsement. We are hampered by no dogma; so that while we are not seduced by utopian theories, while we make no experiments with obvious and gross delusions, and while we set our faces like flint against fraudulent pretenses and practices, we carefully consider every promising suggestion, by whomsoever made, and we gladly adopt every useful discovery, and every tested new application of old principles and remedies.

Is not this platform broad enough to afford standing and working room for every one who seeks to know and practice truth?

It is fashionable in certain quarters to decry the medical schools of our country; to censure their practice of so oiling their portals that the grossest ignorance can find an easy and welcome admission; to inveigh against their methods of teaching; and to condemn the facile, if not farcical, examinations which permit incompetence to seize a title and go forth to prey upon community.

Indiscriminate and unmixed reprobation is not only unjust; it defeats its purpose. For whatever may be the deficiencies of our great schools; however far they fall short of what they can and should be; they have excellencies which should not be ignored. They have given to the profession men renowned throughout the world for their wisdom and skill. In their corps of teachers are many whose aptness and industry and ability are unsurpassed. They afford clinical opportunities so rich and varied as to leave nothing to be desired.

If their requirements for entrance and exit have been too low, is it not because the profession have not demanded higher? If the terms have been too short, and the years required too few, and the methods unnatural and deficient, is it not because the profession have given little practical encouragement to the hearty, even if too speedily abandoned, attempts which some of the schools have made to secure needful reform?

Can it be doubted that the accomplished and devoted teachers in the schools are always ready and willing to respond to any earnest call of the profession for a higher standard?

Shall this call be made? Will those who make the demand prove their sincerity by pledging their influence, their aid and comfort, to those schools which, at whatever labor and expense, shall eliminate the faults of the present system and bring it into harmony with the teaching in all institutions of learning, and with the law of mental evolution and growth?

That brilliant results have been achieved under the prevailing system of medical teaching has not been, and cannot be, denied. Would they not have been still more brilliant and satisfactory under a better system?

The native Ceylonese, with instruments which would hardly be tolerated in an American blacksmith's shop, sits on the ground and patiently fabricates jewelry and filigree, which are marvels of exquisite delicacy and beauty.

Retaining his present artistic taste and skill, how much more and better work could he do with the perfected instrument of his civilized brother.

The superiority of the graded system of medical training is not universally acknowledged. At least one prominent teacher and one good medical journal openly profess not simply a contentment with the present unnatural system, but an admiration for it, and a desire to have it conserved. The attempts to reduce chaotic elements to order, they denounce as impracticable; and they kindly predict and counsel their early abandonment.

Proposed reforms always provoke some opposition. The attempt to introduce into Mexican farming such modern implements as the steel plow, the cradle, the reaper and thresher, is earnestly combated by many of the native workers. They not only adhere to the sickle and to the old one-handled Palestine plow—an iron-shod stick which barely scratches the soil—and to the threshing-floor, where oxen and mules tread out the grain, but they insist that this clumsy system is the better. They hill their corn, as our own farmers did fifty years ago. They use a hoe in the operation. But the hoe has no handle, and the native partly creeps and partly jumps, like a kangaroo, from hill to hill, as he goes through the field. Still he loves and reveres the old ancestral implement. He denounces the handle as a device to promote laziness; and he asserts that with a primitive hoe in each hand he can do more and superior work. It was only by compulsion that these earnest Mexican conservatives could be brought to use wheelbarrows on the public works. They preferred to carry their loads of stone and dirt on their backs and heads. And such was their devotion to the ancient method, that at first they actually shouldered wheelbarrow, dirt and all, and then vociferously condemned the new notion as a fraud and nuisance.

Honest differences of opinion should be treated with respect and tenderness. And since these differences exist regarding medical education, it may not be unprofitable briefly to compare and contrast the antique system with the modern.

Most of you know, from personal experience, that in the large majority of medical schools in this country, the student, at the very outset, is expected and required to hear lectures on all the branches taught—the most advanced as well as the elementary—every day. Although not usual, the occurrences to be described are by no means impossible. An ingenuous youth, full of zeal, industrious, ambitious, but with scant knowledge of the elements of the most moderate education, is received without question at the grand old conservative college. He matriculates. He attends a lecture on anatomy,—the first he ever heard of this important subject. He is delighted. He enters the laboratory and listens with pleasure and profit to the professor of chemistry. Truly, he says to himself, the ways of wisdom are ways of pleasantness, and all her paths are flowery walks of peace.

He hastens into the surgical department. The lecture is introductory. But in a few days, and while his knowledge of anatomy is still limited to an awful admiration for the suspended skeleton and for the tray of disarticulated bones on the table, the subject of the lecture is aneurism.

The bright description, the lucid explanation make the whole subject interesting and satisfactory. The eloquent professor describes the operation for ligating the radial artery in its lower third: "Hold the hand supine; make an incision two inches long on the radial side of the *flexor carpi radialis*. The integument and aponeurosis being laid open, the artery is at once brought into view."

This is all clear enough to you, learned Fellows, because you have received sufficient anatomical instruction.

But the fresh pupil whom we are considering—one of us perhaps—whose hopes but a few days ago were radiant and towering, becomes perplexed and disheartened, if not disgusted; because he has no knowledge of what radial may mean; whether aponeurosis is an animal or vegetable; or whether the *flexor carpi radialis* be a bone, nerve or sinew, situated on the crown of the head or sole of the foot.

After the wearisome—wearisome because incomprehensible—incomprehensible because the student has not been prepared to understand it—lecture on surgery is ended, the still plucky pupil ventures into the room where the professor of the art of medicine is showing how insufficiency of the tricuspid valve, by obstructing the onward flow of blood in the *vena cava*, may cause congestion of the portal system and then gastric catarrh, hæmorrhage and albuminuria. He does not doubt the truth of the demonstration. But it loses all its beauty and force because the poor fellow has not the slightest notion of what tricuspid, or any other valve, may be, or where the *vena cava* or portal system is located.

In the obstetric department, the same failure to comprehend the lecturer results from the same want of preparation. But the rules of the school require attendance on all the lectures. And so, hour after hour every day is wasted, by an earnest and ambitious student, in listening to what he cannot understand, and so neglecting the studies which are prerequisite.

The short winter course is passed, and the student emerges in the early spring, with a head full of jumbled and meaningless words, with muddled ideas of medicine, obstetrics and surgery, and with insufficient knowledge of anatomy, physiology and chemistry, *because* the time which should have been devoted to these fundamental studies has been frittered away in a dazed attendance on lectures he had never been prepared to understand. The next winter he goes through exactly the same course but he is now better able to comprehend the teaching.

In *building a dwelling house*, you prepare a plan—first consulting the good wife regarding the fitness of things—and then you go ahead decently and in order. You lay the foundations deep and broad and strong. You carry up the superstructure carefully and gradually, so that no cracks nor flaws shall afterward appear. You put on the roof; finish the rooms honestly, without veneer or graining, and wait a sufficient time before you move in with your family.

You do not jumble all together, working an hour on the turret, another on the trench for the cellar walls, and still another on window sills and hard finish and joists and rafters.

If you were to *train for an athlete*, you would not unwisely overstrain your sinews the first day by doing work beyond your ability. You would begin with light weights and moderate walks, increasing the labor each day as the muscles became developed and strong.

In his attempt to *make an accomplished musician*, the wise teacher first trains the fingers and wrists of

the pupil, and requires much practicing of the exercises and scales, till all the fundamentals are thoroughly mastered.

He does not allow the aspiring youth to practice the rudiments in the forenoon, and then, in the afternoon, murder the symphonies of Beethoven, or attempt to render the brilliant lunacies of Wagner, at the very outset of his career.

If it should be proposed to *evolve a mathematician* out of raw material, we would not ask the candidate the first day to solve the problem of the hare and hounds, nor to listen to a demonstration of the 12th Proposition of Euclid.

We would begin with the simplest examples in addition and subtraction, and then advance through the higher and still higher departments, till at length, like Verrier, the fully developed candidate could discover and locate a planet by pure mathematical calculation.

In *training* a *child* to be a *linguist*, we begin with the simplest form of speech and lead him on, by precept and example, till he can speak with the tongues of men and of angels, and have charity besides. It would be unnatural, and therefore unwise, to allow him to waste time at the start in listening to the sounding brass of Cicero's orations, or the tinkling cymbals of Xenophon's fables.

If in every other department of human industry the natural development plan is pursued without opposition or question, why should medical education be the marked exception? Why, if we wish, as we ought, to *utilize* to the utmost, *the time and talents* of a *medical student*, should we not take him step by step—for that is what the graded course means—through anatomy and physiology, histology and chemistry up to surgery and practice and obstetrics?

Why should we have him fritter away the scant but precious hours of his first course of lectures in listening to what he cannot by any possibility fully comprehend? Would not this be doing what ought not to be done, and leaving undone what ought to be done?

The natural system of medical education is no longer a beautiful and dreamy speculation. It has been fairly tested, and it has been found efficient. Those who know it best give it the heartiest approval. The requirements for matriculation are, or should be, more and more exacting every year. The written and oral examinations are frequent and thorough. The yearly and final ordeals are very trying and severe; but the students who have brains, application and faithfulness always come through triumphantly. Even those whose natural capacity is not the greatest succeed remarkably. Under a natural system their mental growth is rapid and astonishing. At the last they seldom fail because their time has been husbanded and properly employed; because their studies have been interesting and delightful inasmuch as they have been thoroughly comprehended and mastered, every step of the way.

Here are two pictures. Do they not represent the prominent differences in requirements and results between the ancient, but still prevailing system, and the modern one.

In one case; no preliminary examination; only two short courses of lectures required, the second identical with the first; the novice required to attend lectures on every subject every day, neglecting preliminary work because the time which might have been devoted to it has been worse than wasted in hearing learned talk which he was not prepared to understand; valuable clinical and laboratory opportunities; no examinations to advance to higher grades, for there are no grades; a final examination which is so superficial in many instances as to be little better than a farce, and whose meshes are large enough to let mediocrity and inferiority, as well as the superiority, which is always present, pass through with greatest ease.

In the other case; preliminary examinations which require a certain, even if insufficient, preparation; three years of training at the college, the novice beginning at the beginning; all his time employed in hearing and doing what he can and should understand; his capability and progress tested by frequent oral and written examinations; his advance from grade to grade checked if his fitness be not established; valuable clinical and laboratory opportunities; searching yearly examinations; and a final examination, which, although of great severity, does not, except in rare instances, result in rejection, because the student has been educated in a way which accords with Nature and does not violate it.

Of these two systems, judge ye which is the better.

And yet the difference between the old system and the new is greatly one of arrangement. A change from one to the other can be effected with as little commotion as was noticed when twenty discordant and puzzling computations were consolidated into the present admirable system of standard time.

No more teachers would be required; no better lectures could be delivered, or would be needed. The labors of the professors would be considerably increased because the total length of the lecture season would be more than doubled, but they would hardly be conscious that a radical change, amounting to a revolution, had taken place. But the students, who are to be the physicians of the future, and the confiding patients of these physicians would derive incalculable benefit.

Would not the adoption, by all the schools of this country, certainly by those of this State, and especially by the three prominent ones in this medical metropolis, of the natural system, with the honest and vigorous enforcement of its entire demands, secure a practical elevation of the medical standard, so much yearned for; deserve the support of the profession; and restore a confidence which has been seriously impaired? Would not this adoption protect community to the greatest extent possible from incompetence, and render unnecessary, so far as legitimate medicine is concerned—the only medicine about which we have any solicitude—the proposed State Board of incongruous Medical Examiners?

And now, Fellows of the Association—good fellows and patient, one and all—I thank you for the very great and, of course, unsought honor—for it would not be an honor if I had sought it—you have

conferred in choosing me to be your first presiding officer. I confidently count on your kindly forbearance and your generous assistance.

I congratulate you that our first meeting begins so auspiciously; that the promised material for our coming three days' scientific festival has never been surpassed in richness or variety.

I cordially invite each and every one to contribute to the success of the feast.

APHONIA DUE TO CHRONIC ALCOHOLISM. PARALYSIS OF THE LATERAL CRICO-ARYTENOIDS.

BY ETHELBERT CARROLL MORGAN, A.B., M.D.,
WASHINGTON, D. C.

Read to the Section of Ophthalmology, Otology and Laryngology of American Medical Association, May 8, 1884.

There is no morbid condition involving the vocal organs possessing a more varied pathogeny than paralysis of the lateral crico-arytenoid muscles, the functional aphonia of pre-laryngoscopic authors.

No disease is more doubtful in its amenability to therapeutic measures, the restoration of voice in some instances following the introduction of the laryngoscopic mirror; in others baffling all our resources. That motor disturbances of the muscles under discussion resulting from fright, mental emotion, anæmia, chlorosis, dysmenorrhœa, intestinal irritation,[1] rheumatism,[1] syphilis, diphtheria, hysteria, and reflex influences do occur is a fact generally admitted and frequently observed by the laryngologist.

Lead,[2] arsenic,[3] phosphorus, opium,[4] and belladonna,[5] have all been accredited with having caused palsy of the various laryngeal muscles. These cases, however, are greatly scattered throughout literature, and occasionally lack important details. "The influence of certain substances taken in poisonous doses is exerted upon the nerves and muscles of the larynx as well as other parts, and loss of voice is a circumstance to be witnessed after using some of the powerful narcotics, antimony, mercury, arsenic, and other poisons of an exhausting character."

"These agents act slowly . . . . causing a palsy similar to wrist-drop."[6]

Though analogically we may be warranted in establishing an alcoholic laryngeal paralysis, I am aware of but few precedents in the form of recorded cases.

Hamon,[7] in recording an instance of what he denominates "aphonie alcoolique," takes occasion to say: "Alcoholic aphonia is an affection rarely observed, and it is doubtless for this reason that medical treatises are silent upon this subject."

Whilst prolonged indulgence in alcoholic stimulants not infrequently terminates in loss of voice and imperfect articulation, dependent upon central paralysis, there is also evidence that the loss of voice may occasionally originate in defective peripheral innervation.

I am only too conscious of the great difficulties enshrouding this entire question of pathogenesis in paralysis of the laryngeal muscles in the affection under consideration.

Ziemssen[1] says, "It cannot be determined whether or not the toxic paralyses of the vocal cords are to be regarded as central paralyses of the glottis."

Cohen[2] in describing paralysis of the lateral adductors says, "The cause of these paralyses is sometimes involved in great obscurity."

The exposure, muscular relaxation and lowered vitality accompanying and resulting from chronic alcoholism, doubtless assist in producing the motor laryngeal trouble.

A few of the ancient writers on medicine clearly allude to the modification of voice during intoxication. Thus Hippocrates[3] in his article on Aphonia remarks:

"*Si quis ebrius ex improviso mutus fiat, convulsus moritur, nisi febris corripuerit, aut ubi ad horam qua crapulæ solvuntur, pervenit locutus fuerit.*"

Morgagni[4] mentions alcoholism as a cause of aphonia, and speaks more particularly of the central lesions giving rise to this trouble.

G. Andral[5] says: "Nervous aphonia is sometimes noticed after hysteria is developed during drunkenness, and may be caused by both opium and belladonna."

There is a common phrase used in Germany expressive of the deleterious influence which alcoholics exert upon the vocal organs—"Er säuft sich die Kehle ab."

Bierbaum[6] records the history of a man suffering with mania â potu who was aphonic. This case, however, was evidently due to central influences.

Examples of loss of voice have fallen under my care during a number of years past, which have clearly pointed to alcohol as the "*fons et origo*" of the laryngeal palsy, and consequent phonetic deficiency.

These patients were not periodic, but to the contrary habitual imbibers, and as a rule, only discontinued their protracted debauch when bed-ridden.

The clinical history and data in my first case are as follows:

CASE I. A military gentleman of fine physique and 30 years of age was referred to me by Dr. William M. Mew, U. S. A.

The patient had neither pain, cough, nor thoracic trouble, but exhibited a dull appearance of visage,

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[1] Voltolini, *Wochenschr. f. d. Ges. Heilk.* Berlin, 1845, p. 454-59.
[2] Ziemssen's Cyclop. Pract. Med., vii, p. 946.
[3] A. H. Smith, N. Y. *Med. J.*, 1873, xviii, p. 412.
[4] C. E. Sajous, Archiv Laryngology, vol. iii, I. p. 58.
[5] Andral, Cours de Pathologie Interne. Par. 1836, i. p. 310.
[6] Gibb (G. D.), Diseases of the Throat and Windpipe, London, 1854, p. 102-103.
[7] *Gaz. d'Hop.*, Paris, 1860, xxxiii, p. 221.

[1] Op. Cit. vii, p. 942.
[2] Diseases of the Throat and Nasal Passages, N. Y., 1879, p. 642.
[3] Aphorismes D'Hippocrate, Paris, 1811, Sec. 5, ¶ 5, p. 168.
[4] *De Sedibus et Causis Morborum*, Venice, 1761, vol. I, Epist. xiv, ¶ 34, p. 120.
[5] Cours de Pathologie interne, Paris, 1836, I p. 310.
[6] Deutsche Klin., Berl., 1866, vxiii, p. 56.

and the general evidence of a protracted dissipation, which he admitted.

He could scarcely speak in an audible tone, and stated that the voice commenced to weaken eighteen months previous.

He had been compelled to relinquish his company, as the puerile voice rendered proper decorum among his men an impossibility, for they could not hear his commands.

The laryngoscope revealed a moderately congested pharyngeal and laryngeal mucous membrane, no erosions, hypertrophies, nor inter-arytenoid thickening.

Upon attempted phonation the vocal bands were incompletely approximated, and much phonetic leakage occurred.

The treatment instituted consisted in enforced abstinence from all alcoholic stimulants, the internal administration of thirty minims of tincture of nux vomica thrice daily.

Sprays of an ethereal solution of iodoform 2.30 gms. to 21.00 gms., as well as ammonium chloride 1.60 gms. to 32.00 gms. of water, were administered on alternate days, morning and evening.

Improvement followed, and the patient said that his own children were frightened at his voice on returning after four weeks' absence from home.

In six weeks the voice was completely restored, and he was discharged from medical treatment and rejoined his company.

I learn that he has been more temperate, and that his voice is still good two years after treatment.

Case II. M. C., aged 32, white, to whom I was called on the morning of March 30, 1884, was my second case.

The messenger stated that the patient was experiencing suffocative attacks, and desired my aid immediately.

On arrival I found my patient in a state of nervous excitement. He said in a whisper, devoid of vocal sound, that he had habitually drank alcoholics to excess; but having recently indulged more freely than usual, developed aphonia, insomnia and nervousness.

A laryngoscopic examination showed a normal mucous membrane—no hyperæmia, inflammation or ulceration. The vocal bands, however, failed to approximate during phonation, and on inspiration the same bands evinced indisposition to proper abduction.

A careful physical exploration of the thoracic organs demonstrated the absence of all disease other than slight cardiac hypertrophy, and his intellect, hearing and vision were normal. He had never had syphilis, rheumatism, or any laryngeal inflammation.

The patient said that on a previous occasion he had lost his voice for ten days, during an exacerbation of alcoholism.

My treatment in this case comprised abstinence from alcohol, the administration of a purge of calomel and rhubarb, followed by nervous sedatives and hypnotics. I pencilled the larynx with a pigment of zinc chloride, endeavoring to arouse the torpid muscles.

The patient slept well during the next forty-eight hours, took nourishment, and improved in voice but slowly.

I finally employed faradisation and nux vomica with the best result, as the power of complete phonation was regained in ten or twelve days.

Here are two instances of aphonia existing in patients having normal sight, hearing, and perfect intellectual faculties, patients free from chronic catarrhal laryngitis and the evidence of syphilis or rheumatism.

The removal of the alcohol in one, and the employment of either an excito-motor stimulant or faradisation in the other, resulted in entire restoration of voice in these patients.

The rapid improvement in my cases, and line of treatment, excludes intracranial influence as causing the aphonia.

Hamon[1] says: "It is totally unnecessary for alcoholic poisoning to be pronounced in order that aphonia may be produced." This statement is in accord with my own observation, and is verified by my cases.

Alcoholic aphonia is, in my opinion, more common than the scanty literature would suggest.

The voice, as Broue[2] judiciously observes, is the hygrometer of sobriety.

Recalling, then, the many causes involved in the production of paralyses of the lateral crico-arytenoids, and the uncertainty of our knowledge on the entire subject, may I venture to add alcohol to the list of toxics occasioning paralysis of the laryngeal muscles?

At least let alcohol be assigned to the same category as lead, arsenic, antimony and opium, there to remain subject to future scrutiny and additional clinical observation.

TREATMENT OF UTERINE DISPLACEMENTS.

BY AUGUSTUS P. CLARKE, M.D., CAMBRIDGE, MASS.

Read before the Gynæcological Society of Boston, Nov. 13, 1884.

Perhaps in no other department of gynæcological practice has a subject been more thoroughly considered than that of the treatment of uterine displacements, and although much has been achieved in this direction by the study, still there remains much diversity of opinion in regard to the propriety and method of such treatment. From the earliest times physicians have recognized the discomforts of uterine displacements, and have sought in some manner to rectify them, and for such relief a great variety of devices have been used. The ancients made use of medicated pessaries, which they distinguished into astringent, opiate, aperient, emollient, etc. The solid pessaries are composed of cork, ivory, wood, gum elastic, sponge, caoutchouc, silver, lead, zinc, copper, glass and other peculiar substances, and often coated or concealed by soft rubber or other protective, as the peculiar symptoms, or as the fancy of the operator might dictate. Indeed it would seem that a physician can hardly be considered a good gynæcologist until he has devised or approved of some special form of a pessary. Without attempting to wade

[1] *Gaz. d'Hop.*, Par., 1860, xxxiii, p. 222.

[2] Hygiene Philosop. d' Artistes Dramatiques, Par., 1836, ii, p. 109.

through the history and description of these several singular contrivances, I would state that the main design in theory, at least, in the treatment of uterine flexions is to place the unimpregnated uterus of a woman, otherwise healthy, in such a plane or position in the pelvis that the circulation of that organ shall be unobstructed. This is the important point in the treatment that should not be lost sight of, if we are to succeed at all in properly selected cases. Another important point in correcting a displacement or prolapse is not to elevate the uterus above the normal health line, for when the elevation is too great, the symptoms of prolapse or displacement will remain unrelieved, and the cervix be liable to become eroded, and a leucorrhœal discharge take place. The enlarged and flabby condition of a retroposed uterus has often been ascribed to subinvolution of that organ, but this condition of hypertrophy is often found in nulliparæ who present themselves for treatment for retroflexion. I can recall cases of retroflexion occurring in nulliparæ when the cervical canal was patulous and when the mucous membrane of the lips protruded, presenting the appearance of ectropion.

Such cases are usually attended with a cervical discharge producing more or less excoriation, and often vaginitis. The uterus at first, and more especially the fundus, is retroflexed, and if the symptoms remain unrelieved, that organ becomes more and more prolapsed. In this condition the uterus is often extremely sensitive, and the adjacent parts, particularly the ovaries, become the centres of hyperæsthesia. In such a case as this the retroflexion is not the sole cause of this perverted sensibility—but it is owing to the changed relations of the body, fundus and cervix to each other, and the necessary strain upon the uterine ligaments and the production of venous stasis in the parts, by the pressure on the walls of the blood-vessels at the preternatural curve or angle formed by the flexion. In recently produced cases, by sudden violence a good deal of hæmorrhage often takes place, but this is not owing to congestion, as is sometimes ascribed, but to the obstruction in the circulation as stated above. Authors are accustomed to speak of different degrees of retroflexion. Thus, the first degree is where the uterus has a slight bend backward, and the second is where it has a more marked flexion. The third degree is where the fundus is so much bent backward as to have the two extremities of a semicircle nearly touch each other. Sims used to state that the normal position of the unimpregnated uterus is on a line parallel with one from the umbilicus to the tip of the coccyx, this to be determined by the introduction of the uterine probe or sound. Any deviation from this position, which constitutes an angle less than forty-five degrees, is, as a rule, not to be considered as abnormal. The symptoms of uterine displacement are numerous. One of the most common is uterine dyskinesia, or painful and difficult locomotion. This symptom may occur with either variety of flexion, and become so aggravated as to acquire the title of reflex paraplegia. In such a case the power of locomotion is greatly diminished, and the action of the muscles is deficient. According to a more recent view by Dr. C. J. Nixon (Dublin *Journal of Medical Science;* JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, vol. iii, p. 408), the dyskinesia or paraplegia is the result of an ascending neuritis or phlebitis which extends from the primary source of the disease of the uterus to the spinal cord, or the occurrence of a descending neuritis commencing in the sacral plexus, and extending downward along the sciatic nerves.

I have now under treatment a young lady unmarried, who has suffered greatly from uterine dyskinesia as a result of a retroposed uterus in the second degree, and whom I have greatly relieved by paying close attention to the uterine displacement. In her case the local application of tannin and glycerine continued for several weeks, coupled with good tonic constitutional treatment, has in a great measure relieved her distressing symptoms and enabled her to walk again as heretofore. The glycerine, according to its well-known action, abstracts fluid from the thickened and œdematous parts, while the tannin by its astringent power gives support to the vaginal and uterine walls. In another case I have used alum instead of tannin, in accordance with the plan of Robert Bell, M.D. (physician to the Glasgow Institution for Diseases of Women, Retrospect, part 89, page 165.) According to this author the tampon when saturated with a solution of alum in glycerine and applied in flexions or versions acts in three different ways; 1. as a support; 2. as a depleting agent; and 3. as an invigorating agent to the uterus and vagina. That this agent by its styptic powers reduces the arterial supply, and by its astringent property induces contraction of the muscular fibres, and thus materially assists in the expulsion of the venous blood. It has another advantage in being a cleanly application; it coagulates the catarrhal discharge and thus prevents its decomposition and the excoriation and vaginitis consequent on profuse and acrid discharges. Under this treatment papillary ulceration speedily disappears and hypertrophy of the cervical tissue greatly diminishes. I have recently had a case of a multipara, aged forty years, who had been a great sufferer from a retroposed uterus of the third degree. She had suffered much from hyperæsthesia extending to the left ovary, she had also suffered from cellulitis. The uterus could not easily be replaced, owing to firm adhesions. There was a good deal of unhealthy discharge, she had had an unfaithful husband. I tried a great variety of pessaries, but she experienced no benefit from their application. Indeed, it was with much difficulty that a pessary could be adjusted, as the uterus was held so firmly by the adhesions. This lady suffered much from cystitis, owing to the pressure of the cervix and body of uterus upon the bladder. As this woman had a very fair perinæum, I was advised to try tampons of glycerine and tannin. The applications were to be made every day or two, while the patient was in the recumbent position. These tampons were applied with gentle pressure at first, and each succeeding one was applied with more and more pressure, when at length the adhesions gradually gave way, and the uterus could be raised higher and higher toward the normal health line.

The hyperæsthesia and vaginitis finally disappeared, and the leucorrhœal and vaginal discharges ceased, and the mucous follicles about the cervix became atrophied. These medicated tampons were continued for some time after her more distressing symptoms had yielded.

In another case I used alum instead of tannin, as recommended, which is more cleanly, besides it gave equal if not better satisfaction. Following is the formula: glycerine, 320 grammes; alum, 40 grammes; acid carbolic, if deemed necessary, 8 grammes; water, q. s. and a tampon of absorbent cotton saturated with the mixture is to be placed well up in Douglas's pouch, the other larger one behind the cervix and acts as support of the smaller of the two. This treatment is applicable to the bladder symptoms of anteversion or anteflexion, as a rule one tampon is sufficient (Retrospect, part 84, pages 201-2). I recall another case of retroflexion which occurred in my practice about a year since, where a similar treatment was so far successful that the patient could dispense with the use of a pessary without inconvenience. Before she came under my care she had worn several kinds without material benefit. In another case where the retroversion was dependent upon a subinvolution the application of the medicated tampons, and small and repeated doses of ergotin, in pills three centigrammes, three times a day with gentle laxatives, effected a thorough and speedy recovery. In another case where I freshened the edges and closed an old ruptured perinæum for rectocele, I employed medicated tampons as a preparatory treatment. This case did well but a Hodge pessary was afterward necessary for a long time. In an old and troublesome case of prolapse, where there was a very fair perinæum, occurring in a Swedish lady, I succeeded quite well with the tampon but a good sized Hodge pessary afforded her great comfort.

Cases of anteflexion with or without cystocele are often quite troublesome and difficult to relieve. The following case came under my care: Miss H., unmarried, aged 16 years, had suffered for some years more or less from an affection of the bladder. She suffered from symptoms simulating calculus of the bladder. Her suffering at length became so severe that medical attendance was imperative. This lady suffered from bradysuria, and the urine contained a copious sediment of mucous or white corpuscles. A thorough exploration of the bladder demonstrated that there was no calculus, but that the uterus was sharply anteflexed or bent upon itself like a joint of a finger when closed. The uterus, while the patient was under ether, was replaced by means of a uterine sound. Considerable pain and constitutional disturbance followed the operation, but this soon subsided. This patient at the time was seen in consultation by one of the most distinguished surgeons of Boston, who advised against the use of a pessary in this particular case, relying upon general treatment and occasionally restoring the displaced organ, but contrary to his advice a Hodge pessary was fitted and applied with seeming benefit and relief to the patient. This was by the advice of a specialist in this line of work.

This case I have had under observation and care for the past six years or more, and though the patient was undoubtedly relieved by the hot uterine douches at first continuously and systematically employed, yet I have had some doubts whether the pessary has been of that particular benefit which it at first seemed to promise. For I cannot forget what J. Matthews Duncan has said (Retrospect, part 87, page 206)—that a kindly doctor makes an amiable patient anxious to please him and ready to express a sense of relief which may not be real. Our patient was all this; a highly amiable lady, trained with great care, and anxious to please, and undoubtedly ready to express a sense of relief which may not have been real, without having a desire to be untrue. This young lady, contrary to the advice of *Punch* to the young man, not only contemplated marriage, but recently has become a wife to a sturdy Saxon. The writer of this paper has not lost his interest in the case, but still has his lenses properly focused, in order to see, not only what is to be the outcome of this case, but further, to ascertain who had the sounder opinion—the distinguished surgeon or the presuming specialist. One practice, however, that was at first offered, that of replacing the uterus from time to time by the probe or finger, does not receive the sanction of J. Matthews Duncan. This, he says, has no other effect than to irritate the organ, for the displacement immediately recurs after the probe or finger is removed. Duncan further, speaking of the use of pessaries, says he has never used one on any ground whatever in a virgin, and as to the benefit of pessaries for anteflexion, he expresses no belief, but remarks, if they do good, it is not by keeping the uterus straight; it is by diminishing or preventing further descent of that organ. He remarks he has never used an anteversion pessary, and that he has no idea or intention of so doing, as he has never seen any benefit from their use. Matthews Duncan, in the same part (87, page 282), speaking of minor displacements of the uterus, says we may have these displacements without the symptoms, and the symptoms without the displacement, and until we know better than we know now that the symptoms are dependent on the displacement, he advises us to leave the displacements alone.

Now after reading carefully the above article, I cannot but feel that the author here referred to fails to distinguish a pathological condition of the uterus from a normal physiological one. According to the statistics of Dr. Vedeler (Archiev für Gynäkologie, retrospect, part 86, p. 196) who examined 3,012 women, found 18 suffering from prolapsus. Of the remainder, in 15 per cent., the position of the uterus was normal, it was anteverted in 12 per cent., retroverted in 10 per cent., anteflexed in 54 per cent. So that of 3,012 women of the menstrual age, and of all conditions, the uterus was anteflexed in more than half of the number. Of the whole number 466 were virgins, 749 nulliparous, 322 were from 2 to 3 months pregnant, and 1,465 were mothers. In healthy nulliparous women the normal position was found in 9 per cent. only, and anteflexion 71 per cent. In nulliparous women who complained of pelvic symptoms

the normal position was 15 per cent. and anteflexed in 56 per cent. In about 75 per cent. of healthy women who are nulliparous, the uterus was in a state of anteversion or anteflexion, while a similar position of the organ was found in 70 per cent. of such women who complained of uterine suffering, and the so-called normal position was found in 8 per cent. only of such women in health, but in 13 per cent. where they suffer from uterine disease. Emmet early recognized that versions may exist an indefinite period without causing disturbance, and it is only when the circulation is obstructed that discomforts arise. I have a patient who has had a marked retroversion for the past eight years at least, and who has not had the slightest inconvenience from the displacement. In her case there is no impediment to the uterine circulation. I can also recall several cases of well-marked uterine displacement where no untoward symptoms have occurred. It is only in retroversion and in prolapse that mechanical means are of use. For this statement we have the authority of Emmet. As for anteversion[1], that is for the most part the normal condition of the uterus, and it is only where we have prolapse or descent of the organ that vesical disturbances occur. The descent causes traction downward on the neck of the bladder or along the anterior wall of the vagina, just as retroversion causes the dragging of the neck of the bladder upward. Now in order to relieve the bladder in consequence of the anteflexion we must correct the prolapse of the uterus as we do in cases of vesical disturbance arising from retroversion. This was the condition in the case of my patient suffering from the effects of the anteflexion already referred to when a Hodge pessary was employed to elevate the uterus without regard to the flexion of that organ.

The same end is sought to be compassed by a new method of treating the severer uterine prolapsions by operation on the round ligaments (by William Alexander, M.D., F.R.C.S., England, Surgeon to the Liverpool Work-house Infirmary). Hence we see, from a therapeutic point of view, why, before the advance of gynæcology, the term prolapsus uteri was employed to embrace all that is comprised in the several terms that now denote uterine displacements. The operation devised by Alexander is not limited to cases of prolapsus uteri as such, but it has been resorted to with success in cases of retroversion, attended with descent of the uterus. Cases of cystocele, with prolapse of the vaginal wall, where there are no adhesions, may be slightly benefited by the operation, but where there are old adhesions this operation should not be undertaken. Drs. Campbell, Adams, Lediard and others have had recourse to this operation with success. Dr. Knowsley Thornton (Retrospect, part 82, p. 281), speaking of uterine displacements, says it is the descent of the uterus and the dragging on the ovaries and broad ligaments, with consequent interference with the functions of the bladder and bowels, that lead patients to seek our aid. For extreme cases, where there is no descent, but where mechanical obstruction exists in the cervical canal, he resorted to graduated sounds for their relief. This practice I have myself adopted, in several instances, for some years past, with quite good success. In such a case now, I make use of rapid dilatation as being more satisfactory. In regard to stem pessaries, Thornton believes them to be often of incalculable mischief. He believes those who take out pessaries, as a rule, do infinitely more good, and infinitely less harm than those who put them in. The writer of this article remembers once to have heard the late Dr. Atlee make the remark that he was often consulted in cases where he removed a pessary, but rarely in a case where he deemed one necessary. The advice contained in the above remarks, in regard to the use of pessaries, strikes every one as being somewhat sweeping, but perhaps was aimed at the practice of the cranks in the profession, who often can not discriminate between a case of simple retroversion and one requiring the aid of this valuable instrument. Besides the means above referred to, cases have been relieved by other modes of practice. Dr. Evory Kennedy (late Master of the Dublin Lying-in Hospital, *Med. Press and Circular*, Sept. 25, 1872), makes mention of an obstinate case of procidentia cured by the actual cautery.

After the uterus was placed *in situ* the actual cautery was then applied about an inch and a half from the vulva round the surface of the vagina for the extent of about half an inch. The cicatrix formed by the eschar prevented the descent of the os. In my early practice, I remember treating a case of old and obstinate prolapsus uteri by industriously applying for several days, for the profuse leucorrhœal discharge, a strong solution of nitrate of silver to the protruding cervix. The uterus I had previously restored, but a violent inflammation ensued, that resulted in such firm adhesions I was never afterward able to distinguish clearly between the cervix and the fundus of that organ. Suffice it to say that the patient finally recovered from all her distressing symptoms, and regarded her case as having been most skillfully treated. In the same paper we find reported a case of procidentia vesicæ treated by a vaginal mould. A cast of the vagina was taken in wax, with the bladder restored to its natural position. A plaster of Paris mould was made from it, from this a caoutchouc instrument was moulded. This the patient wore with great comfort and convenience. Dr. James Dunlop reports a case of artificial occlusion of the vagina for the cure of prolapsus uteri. In this case, a strip of mucous membrane an inch and a half wide was dissected from half an inch below the meatus on one side to the corresponding point on the other. The raw surfaces were brought together, and kept together by means of quilled sutures. This patient was dismissed as having recovered. (*Med. Times and Gazette*, Feb. 26, 1876), Dr. Protheroe Smith speaks of having used a pelvic band in the treatment of uterine versions. The main feature of his appliance is that it forms an artificial skeleton, and so supports all the chief *points d'appui* by which the complicated muscular systems engaged in the acts of expulsion harmonize and effect their purpose. As regards the choice

[1]Since finishing this article I find just published in the Boston *Medical and Surgical Journal*, vol. cxi., p. 394, October 23, 1884, the fact alluded to by Dr. Fifield that in fœtuses and young infants the uterus is anteflexed and bent to the lef

of pessaries, Gaziel's air ball or air ring is often of benefit. I have mentioned having used Hodge's pessary; this I have found as good as any. Otto's spiral pessary I have often used, it is useful in cases of a temporary treatment. Graily Hewett's ring pessary is highly praised by many. It consists of a copper wire ring coated externally with gutta percha or soft rubber. The wire is of various diameters, and can be moulded into any shape the case may require. It is suitable for cases of anteversion, retroversion and prolapse. Thomas's anteversion and retroversion pessaries are often of benefit—I have used both with seeming advantage. From time to time many surgical operations of a heroic nature, such as the removal of the cervix, the entire uterus, the narrowing of the vagina, have been undertaken for the relief or cure of obstinate cases, but no operation is more satisfactory, in properly selected cases, for the relief of the distressing symptoms connected with uterine displacements, than the one undertaken for the restoration of a ruptured or deficient perinæum to its normal dimensions.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

Epilepsy and Bromism. Bromide of Potassium. —Prof. Germain Sée, in *La Semaine Médical*, discusses this subject at considerable length. He considers first:

What is the part played by the potassium and the bromine in bromide of potassium? Since the investigations of Traube the effect of the potassium salts, particularly of the nitrate, upon the heart has become recognized. The heart, after a short period of excitement, undergoes a certain degree of inhibition with diminution of the blood pressure; hence the conclusion that all the salts of potash constituted the true therapeutic method. But experience has shown that the chlorate, nitrate, and iodide of potassium are all perfectly inert in the treatment of epilepsy. It is therefore proven that potash in general, no matter in what dose it is given, does not possess the slightest therapeutic influence in epilepsy.

Another view of the action of bromide of potassium is to divide its physiological action into two parts, recognizing on the one hand its effects upon the brain, the spinal cord and the skin as of a special nature, and on the other, its effects upon the circulation, respiration and heat, as of a general nature and alkaline in its origin. The latest researches of Krosz show that in man the whole action is due to the bromine, while in animals the amount of bromine that can be taken as bromide of potassium without producing the slightest effect is enormous.

A third view not only removes all curative properties from bromide of potassium, but gives to it a baneful influence upon the heart, an intoxication of the heart. Here the effects of the bromism are attributed to the potassium, and another alkaline base is sought for, to replace the potassium, in order to avoid the dangers that might result from its constant use for months and years.

It is this theory that has given us bromide of sodium, bromide of ammonium, and the combining of the two with the inevitable bromide of potassium. The poly-bromides, notwithstanding their complex effects, are now very much in vogue on account of this potassiophobia. The ordinary dose of 6 grammes of bromide of potassium introduces but 2 grammes of potash into the system. Under other circumstances the stomach has never made the slightest objection to this amount. The 1½ grammes of potash to every 100 grammes of potato has never been suspected to possess a sedative action or injurious effect. To produce effects equivalent to 5 grammes of bromide of potassium, it is necessary to carry the dose of bromide of sodium to 10 or 15 grammes. So, to avoid a very uncertain danger, the risk is run of producing bromism. Injections of bromide of sodium into the blood of animals produces convulsions as with the potash salt. Bromide of ammonium is still more exciting, so that the three salts combined present no advantage over the bromide of potassium, which plays the third part in the poly-bromic mixture.

Absorption and dose. The bromine is readily and promptly absorbed by all the mucous membranes; in a few minutes it appears in the urine; it is true that it takes only two or three days to be thoroughly eliminated, therefore there is an imperious necessity for continuing its action without interruption; to omit a day occasionally or to diminish the dose is permissible, but to stop it altogether is dangerous. Professor Sée has seen patients where, the drug being stopped for several days in succession, convulsive attacks have recurred after an interval of a year or eighteen months. The bromine is eliminated in great part by the kidneys, very little by the salivary glands, still less by the stomach, and these organs are but little influenced by the drug. The respiratory mucous membrane and the skin, on the other hand, are deeply impressed by the elimination of bromine. The pharyngeal mucous membrane becomes the seat of a painful rasping sensation and of a very pronounced pallor, due to local ischæmia—and with a dose of 5 to 6 grammes the uvula becomes more or less completely anæsthetic. Voisin considers this a sign of saturation of the system—and as produced when 10 or 12 grammes have been taken, but individual characteristics in this respect differ so greatly that poisoning might occur before this symptom presents itself.

Woillez has tried to anæsthetize directly the palate by means of strong bromide gargles, but without success,—nor has touching the parts with the bromide itself proved efficacious. The bronchi become frequently the seat of marked irritation, from the passage of the bromine through the secretory glands; this bromic bronchitis results in a little irresistible cough, dry, or with but little expectoration, and is one of the most serious obstacles to the proper treatment of epilepsy. In one case the patient could never take more than one and a half grammes on

account of this cough. A combination of the bromide with morphia or atropia nullifies the effect of the bromide. There is no species of cough—that of whooping-cough, of hysterical cough, or of tuberculous cough, but what is aggravated by the use of this remedy.

With the skin there is shown the effects of slight bromism and of grave bromism. In the first there is acne, which appears early and which has its seat of selection on the face and chest. Arsenic given with the bromide seems to relieve this symptom. The kidneys are not modified but the urine contains an increased amount of chlorate of potassium, which leads to the supposition of an alteration of base and transformation in the blood into bromide of sodium. The salivary glands are often irritated to the production of an abundant and dangerous salivation, contributing not a little to the emaciation of patients. The gastro-intestinal mucous membrane is but little influenced; if pain is produced upon taking the salt, a freer dilution with water will act as a corrective. Neither dyspepsia nor constipation will follow its use.

The bromine is a vaso-constrictor. There are two principal useful qualities in bromide of potassium; the first is its vaso-constricting effect, the second its depressing influence on reflex action in general, and on the excitability of the cerebral cortex in particular. An attack of epilepsy commences with anæmia, resulting from the excitation of the vaso-constrictor nerves; the bromide is powerful against this transitory condition, but the attack continues and terminates by the hyperæmic condition which provokes vaso-dilatation; it is by its antagonistic or vaso-constrictive action that it proves efficacious, but not thus alone, it is also an energetic depressor, or so to speak, destroyer of the reflex excitability of the cortex cerebri, and of the cortex of the medulla, by means of which it prevents the onset of an attack, as well as arrests its evolution. Is there another vascular drug which can be compared to this. Ergot, which is also a vaso-constrictor, stimulates markedly the reflex action. Belladonna is a vaso dilator and stimulates the reflex action. Curare is of no comparison, it acts injuriously by paralyzing the vessels; while the nitrites of amyl or sodium have but an ephemeral effect and are impracticable from their toxic qualities.

The bromine restrains the exaggerated excito-motricity in epilepsy. Clinical cases as observed by several authors leave no doubt of this fact, but a recent experiment made by Albertoni furnishes a physiological proof which seems to be irrefutable and markedly applicable to epilepsies of cortical origin. In electrifying the cerebral cortex as exposed by the trephine, Albertoni produced partial and general convulsions; on administering 2 to 3 grammes of the bromide to the animal the electric excitability of the cortex diminished considerably, and became more marked as the use of the drug was prolonged; it seemed as if a resistance to the propagation of the stimulus to the psychomotor centres was developed by the brain saturated with bromine. This was then a true excito-motor paralysis, which was the more striking, as voluntary motion was intact. After discontinuing the use of the bromide, the brain regained its former excitability, and the electric stimulus recovered its convulsive force. Under the same conditions neither belladonna, atropia or curare acted other than to increase reflex sensibility.

Serious bromism. In his description of this, Prof. Sée details the same train of symptoms as given by various authors. He notes that the general decay is shown by a marked elimination of phosphoric acid and of urea, and has seen death from pneumonia in three cases, which he attributes to the excessive use of this drug. For its relief, he recommends a total cessation of the use of the drug for a considerable period, never to return to doses which have provoked cutaneous, respiratory or nervous bromism.

Mode of using the bromide. Here Prof. Sée adds what he considers as a complement and indispensable commentary to Hammond's work. The efficacy of the bromide rests almost exclusively in the depressive influence which this drug exercises upon the reflex action of the medulla and spinal cord. Therefore everything which might counteract this influence, which might stimulate the morbid excitability of these nervous centres, should be severely proscribed. Epileptics should be denied the use of alcoholic and vinous drinks, beer and carbonized waters; alcohol and carbonic acid gas stimulate markedly the excito-motor functions of the medulla. Coffee and tea, by virtue of the caffeine, produce habitually the same result. In smoking, the nicotine, by exaggerating the vascular action of bromine, by tetanizing the arterioles of the nervous centres, annihilates the useful effects of bromine. Violent gymnastic exercises, hydrotherapeutic remedies, particularly sea-bathing and cold douches, exercise injurious effects upon the attacks. It is the same with physical pain, moral emotions, and generic excitations. All active medication is proscribed, as purgatives, emetics, revulsives, cauterization, and particularly blood-letting.

Auxiliary means. Iron, particularly the tartrate of iron and potassium, 1 gramme per day, Fowler's solution of arsenic, 12 drops per day, sulphate of quinine, cod-liver oil and a residence in the country, moderate physical exercise and moderate mental labor. A proper use of the brain tends to prevent an exaggerated action of the medullary excito-motor power. The bromide does not depress intellectual force, which is generally normal between attacks, and sometimes highly developed. Cæsar, Mahomet and Petrarch were epileptics.

PILOCARPINE IN DISEASES OF THE EYE.—Dr. Caro (*Giornale Internazionale di Scienze Medicale, Recueil d' Ophthalmologie*) has published six cases of eye disease treated by the subcutaneous injection of pilocarpine. The diagnoses were: 1st, choroiditis exudativa, with opacity of the vitreous body; 2nd, exudative choroiditis; 3rd, posterior sclero-choroiditis; 4th, serous retinitis; 5th, serous retinitis, with consecutive opacity in the vitreous body; 6th, serous retinitis. A cure was effected in the first, fourth, fifth and sixth cases. In the second there was a very marked amelioration at the time of publication, and the disease had been completely arrested in the third.

Dr. Boucher comments on this with observations made at the clinic of Dr. Galezowski. In one instance a woman presented herself with some slight disturbances of vision. She was frightened because she thought it was a reappearance of an optic neuritis for which she had been treated, at the clinic, two years previous, with subcutaneous injections of pilocarpine. There was nothing there. On the ophthalmic examination, it was difficult to appreciate that the nerve had at that time gone through a period of inflammation, the only remaining evidence being a slight suffusion of the papillary borders. The patient asserted, however, that at her first visit to the clinic the sight of the left eye was almost completely gone. Recently Dr. Boucher saw a case of double optic neuritis, with a prominence of the optic nerve equal to + 8 diopters, yield to the action of pilocarpine, and the vision become reëstablished to a very satisfactory extent. He is perfectly satisfied of the value of pilocarpine in eye diseases, where there is an exudation or transudation to be reabsorbed.

Dr. Caro carried his injections generally to the number of sixteen, using each time a solution containing two centigrammes of hydrochlorate of pilocarpine.

The Action of Chloral in Albuminuria.—Burduzzi (London *Med. Record*) in 1878, noticed the good effect of chloral in albuminuria, recently confirmed by Dr. Wilson in the *Brit. Med. Jour.* His case in 1878 was that of a lady, suffering from insomnia in the last months of pregnancy, with dyspnœa, from general œdema of the legs and hands, and with highly albuminous urine, in which he ordered 2 grammes of chloral to be taken in two doses every evening. This treatment was continued for about twenty days with very good effects; sound restorative sleep was not only obtained, but the œdema disappeared, and the quantity of albumen in the urine was notably diminished. Labor followed in due course, and was in every respect normal, and the puerperium was free from any complication. Since then Burduzzi has always prescribed chloral in the last month of pregnancy, when there is much œdema, and the urine is scanty and albuminous, as a prophylactic against eclampsia. In a man, 45 years of age, affected by simple nephritis, chloral in doses of 3 grammes a day procured great relief in a short time, and the albumen almost entirely disappeared from the urine. In the so-called physiological albuminuria, chloral is also useful, as the author shows by the case of a man in whose urine albumen was almost constantly present. Burduzzi points out the need of more exact studies of the action of chloral on the renal tissue.

SURGERY.

On the Treatment of Erectile Tumors by Electrolysis.—Dr. Delore (*Gazette Medicale de Paris*) gives the preference to electrolysis in the treatment of erectile tumors, because, 1st, it is precise in its operation—that is, it does not attack the healthy parts; 2d, it is sufficiently powerful to destroy the vessels and vascular cavities which have undergone a morbid development; 3d, the resulting cicatrix is comparatively slight. With a fine needle of gold the smallest and most delicate vessels can be reached. He calls attention to the fact that many surgeons do not make a proper distinction between the galvano-cautery and electrolysis. In electrolysis it is the electricity which decomposes, and not the heat; it is a disintegration of the tissues, more or less energetic, but still a decomposition. The acids which are electro-negative are developed at the positive pole, and the bases at the negative pole. At the positive pole an ebullition is produced, resulting undoubtedly from the discharge of carbonic acid; at the same time the erectile tissue becomes pale and blanched. This is due partly to the electric contraction of the vascular walls, and partly to the electric cauterization. At the negative pole the cauterization is less, hence the necessity for changing the needle of the positive pole more frequently. The success of electrolysis depends upon the use of an apparatus that acts with regularity, and Dr. Delore gives the preference to the Chardin apparatus, which acts by the aid of the bichromate of potash; the pile is in enameled porcelain of two compartments, and the liquid is in the lower compartment, while the zinc and carbon elements are in the upper; it acts when resting on its side, and has special openings for the discharge of gas to prevent the breaking of the porcelain.

Mode of Operating.—The operation being painful, an anæsthetic is desirable, except in children at the breast. The patient being placed in a suitable position, the two needles are introduced into the tissues, when bubbles of air are seen to disengage themselves from about the positive pole, and the needles are surrounded by a whitish aureole, which is due in part to the cauterization, in part to vascular contraction. Attention is first paid to the peripheral vessels, or those which are supposed to nourish the angioma. The needle is left *in situ* as long as it is desirable to sustain a rapid and energetic action; when the surface becomes completely white, it is removed. The object is not to destroy all the vessels definitely, as that would result in a complete eschar of the tumor, but rather to produce cicatricial islets as small and as numerous as possible, so that their retraction may exercise the stenosis and anatrophic action on the adjacent vessels. The operation lasts about five minutes. Often when the needle is removed rapidly from these sinuses or blood cavities, blood flows freely from the puncture; it is well then to remove the needle slowly, and with a twisting movement to assist in coagulating the blood.

Some little time after the operation the pallor of the surface of the nævus extends, and the circulation is reëstablished at all points where the electrolytic cauterization has not been effective. At these points a crust forms, swelling results, and in strumous subjects suppuration ensues. It is only in the case of large tumors that a slight febrile reaction is noticed. At the end of eight or ten days the swelling diminishes sufficiently to allow the operator to examine the

results of his work. Generally, at the end of fifteen days it is preferable to operate a second time, if necessary.

MEDICINE.

ON THE SPECIFIC GRAVITY OF THE ENCEPHALON.—Dr. Morselli, in the *Annales Medico-Psychologiques*, gives the results of experiments made upon forty-four cases of insanity, and finds that the specific gravity of the encephalon of the insane is generally greater than that of the healthy. The cerebellum and medulla oblongata of the insane possess a greater proportionate density than the cerebral hemispheres, compared to the healthy. In the warmer seasons of the year the cerebrum, and especially the cerebellum, are increased in their specific gravity. The specific gravity of the cerebrum and cerebellum in small brains of inferior weight is generally greater in proportion. The cerebrum and cerebellum of the female insane possess a less specific gravity than of the male insane, as in health, but in the insane it is less pronounced. In the male the specific gravity of the encephalon attains its maximum between thirty and forty years of age, in the female between twenty and thirty years. Mental alienation in general, and particularly in middle age, elevates the specific gravity of the encephalon. The greatest density is shown in epileptics and alcoholics; the least in phrenæsthenia and paralytic dementia. The chronic forms of consecutive dementia and of symptomatic delirium coincide generally with a specific gravity which is superior to that in the acute and typical forms of mania and of melancholia. The specific gravity is diminished in the chronic and degenerative secondary forms, extremely elevated in those which are dependent upon alcoholism or epilepsy. A marked elevation of specific gravity occurs where there is compression of the cerebrum by exudations, tumors, etc.; it is lowered in atrophic periencephalitis, diffused encephalo-myelitis, and where there is no compression exercised. The symptomatic insanity of acute diseases (lungs, kidneys, skin), shows an increase in the specific gravity; the insanity which results from the alterations of somatic consumption, and is chronic, as in cardiopathy, caseous or tuberculous pneumonia, shows a diminution of the specific gravity of the encephalon. The density increases when there is a cerebral hyperæmia, and diminishes with anæmia. Induration of the cerebellum and medulla oblongata produces a lowering of the specific gravity; it is elevated in softening and œdema. (*Jour. de Med.*)

REFLEX ACTION OF THE DIGESTIVE ORGANS UPON VISION.—Dr. Rampoldi (*Annalidi Ottamologia Recueil d' Ophthalmologie*) describes several cases illustrating the reflex action of the digestive organs upon the visual apparatus, one of which is particularly striking. It is the case of a young girl, twenty-two years of age, who was taken suddenly with complete blindness of the left eye, followed three days later by a very decided amblyopia of the other eye. The patient had suffered for two years from tænia solium. An external examination of the eyes showed a mydriasis of the left eye, which was so marked as to appear as if atropine had been instilled repeatedly. The pupil was completely motionless to light. The pupillary dilatation was less on the other side, where a feeble reaction to light persisted. Visual acuteness was 0 on the left, greatly reduced on the right. On ophthalmoscopic examination ischæmia of the whole of the fundus of the eye, with increase in the size of the veins, was determined. The patient complained of lancinating pains at all the points of emergence of the branches of the fifth pair of nerves, and even at the point of emergence of the occipital nerve. Servellani's tænifuge (?) was administered. After two or three days there was marked amelioration of vision, which returned to its normal state in about five days. But the worm was only partly expelled.

THE IMPORTANCE OF OSSEOUS LESIONS AS A DIAGNOSIS, AND IN THE TREATMENT OF HEREDITARY SYPHILIS.—Dr. Somer (*Zeitschr. f. Geburtsh. und Gynækol.; Arch. der Tocologie*) gives under this head his observations in the examination of 43 fœti. The first question which he tries to answer is: Is the syphilis of bone an absolutely characteristic condition, to be met with in all cases of hereditary syphilis? May it not give rise to errors of diagnosis? *The characteristics of non-syphilitic bone.*—If a longitudinal incision of the bone be made, there is seen between the bone and the cartilage a delicate straight or slightly undulating line. It is so delicate that microscopically it appears as a simple line, and not as a special layer, with a low power this line is decomposed into a series of little bony projections, very fine, very numerous, crenated, and penetrating into the cartilage. This is the line of ossification. Above this line are seen the cartilage cells arranged in longitudinal series, this is the preparatory layer.

The characteristics of syphilitic bone.—The line of ossification forms a large layer, which carries absolutely irregular processes into the cartilaginous substance. In the bone are found islets of cartilage; in the cartilage, osseous plates in course of destruction. The epiphysis is either completely detached or there are deep clefts in the bone above the limit of ossification. By a low power, instead of the regular series there are great masses of cartilage cells, irregularly disposed, or in vertical series.

He divides his cases into three categories:

1. *The bone gives the perfect alterations of syphilis.* 21 cases. In all the spleen was enlarged. Of the fathers 11 were noted. One was not syphilitic, but his wife was syphilitic from her first husband, and she had two syphilitic children, the offspring of the second, 10 of the fathers had chancres, 3 ten years previously, 3, five years previously, 4, three years previously. Of the mothers 13 were, so to speak, healthy, and had never been under treatment. Four had been infected by their husbands, and four independent of the marriage state. The bones gave the perfect alterations of syphilis. The spleen and liver were always enormous in size. It made no difference in these cases as to the degree of the disease as to

whether one or both parents were infected, whether the primary chancre dated back one or ten years, whether there was or was not treatment, whether there were or not secondary symptoms, whether the child was too large or small. A number of the children were dead before the thirtieth week. The mothers could give no reason for the death of the children, or the premature delivery. In calculating the period of pregnancy, it was always more advanced than the weight of the fœtus would indicate.

2. *The bone presents syphilitic alterations, but they are not marked.* In one case of twin pregnancy, one of the children was macerated, with an enormous liver and spleen, and osseous alterations. The other child was fresh in appearance and showed nothing microscopically which could indicate syphilis. The mother said she had always been well and had already four living children.

In another case of twin pregnancy, both children presented enormous livers and spleens. One of these children was macerated, the other was fresh. In the last, the osseous lesions were so minute as hardly to exist. Nevertheless the child was syphilitic as it presented the bullæ of pemphigus on the skin, or abscess of the thymus and the microscopic alterations of the liver and spleen. In five other cases the spleen and liver were enormous. In these 9 children, three were born living but died in a few hours. These cases present a great analogy to those of the preceding category and presented simply the same disease to a limited extent.

3. *The bone appears normal.* There were 13 cases, in one the child was manifestly syphilitic, two others gave much enlarged spleens and livers. Ten others were born in a macerated condition but not syphilitic. The non-syphilitic fœtus differs in appearance from the syphilitic. It is more mummified, seems dried up, is brown and often covered by a sort of yellowish or cinnabar-reddish pigment. The syphilitic fœtus is œdematous, flesh-colored, with a disagreeable odor. From this he concludes that a normal appearance of the bone in a macerated fœtus, does not exclude the possibility of syphilis. The development of the liver and spleen allows of the conclusion of the existence of syphilis, notwithstanding the fact that the bone gives no proof. In the non-syphilitic fœtus we frequently find some particular defined circumstance which will explain the death of the fœtus, and the size of the fœtus corresponds to the period of pregnancy, which is not the case in the syphilitic fœtus. Finally, in the case of a syphilitic fœtus the placenta presents a weight which is relatively too great in comparison with the weight of the fœtus.

In answering the question: Can there not exist normally, sometimes, osseous alterations like those of syphilis? Dr. Somer has examined the bones of 21 embryos furnished from premature deliveries, caused by placenta prævia or induced delivery. He has never found anything analogous to that which exists in syphilis. Moreover, in the majority of cases the visceral alterations of syphilis coincide with the osseous alterations.

Finally, in concluding his article, he decides positively in favor of paternal syphilitic influence, as equal to that of the maternal syphilis, and he counsels anti-syphilitic treatment in all cases where women abort frequently even when there is no trace of syphilis.

ANATOMY AND PHYSIOLOGY.

The Innervation of the Pylorus.—L. Oser (*Centralbl.; Jour. der Med. Wissenschaften; Jour. der Med.*) has been conducting a series of experiments on curarized dogs, in the laboratory of Prof. v. Basch of Vienna. He introduced into the pyloric constriction, after twenty-four hours of feeding, through the stomach or duodenum, the myrographic forceps, in connection with the registering apparatus of von Basch, which shows the curves of contraction and relaxation.

Whether the vagi or splanchnic nerves were divided or left intact, it was found that the pylorus was the seat of contractions, differing in intensity, which succeeded each other in an irregular manner.

The excitation of the vagi nerves in the neck produced constantly a contraction of the pylorus, the intensity of which was in direct relation to the degree of excitation. The contraction sometimes followed immediately after the stimulus, sometimes it was marked by a longer or shorter interval of in some instances as much as seven seconds. The contraction was sometimes followed by a second one, resulting from a single excitation.

Excitation of the splanchnic nerves in the thorax, caused a cessation of the spontaneous contractions of the pylorus. The effect of a stimulus to the splanchnic was to develop progressively; it attained its maximum between the first and second minutes which followed the application of the stimulus, when the pylorus passed into a state of absolute repose and presented its maximum of dilatation, after which the influence of the splanchnics ceased gradually. Following this were new spontaneous contractions, feeble in the beginning, but at the end of three minutes they had regained their primitive intensity.

If the vagi nerves in the neck, and the splanchnic nerves in the chest were stimulated simultaneously, the inhibitory action of the latter showed itself only by a diminution of the intensity of the pyloric contractions. The maximum excitation of the splanchnic nerves, does not paralyze completely the effects of even the most feeble excitations of the vagi nerves. It is only when this simultaneous excitation is arrested that the effects of the splanchnics are fully manifested, after which, as has been stated, reappears the spontaneous contractions of the pylorus. If the vagi nerves are stimulated at the moment of manifestation of the effects of the excitation of the splanchnic nerves (period of complete repose), either no result follows, or but a feeble contraction is noted, and the action of the stimulated vagus nerve is shown only when this period of repose caused by the splanchnic nerve has ceased.

The left splanchnic produces this action with a sensibly greater intensity than the right splanchnic.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, DECEMBER 6, 1884.

THE INTERNATIONAL MEDICAL CONGRESS OF 1887.—The General Committee for the organization of the next International Medical Congress, consisting of twenty-five members, held its first general meeting in Washington, Nov. 29, 1884. Fifteen members were present and answered to the roll-call, viz.: Drs. J. R. Chadwick, of Boston; A. Jacobi and T. F. Rochester, of New York; J. M. DaCosta, S. Wier Mitchell, and I. Minis Hays, of Philadelphia; W. C. Van Bibber and C. Johnson, of Baltimore; J. S. Billings, U. S. A., J. M. Browne, U. S. N., and S. C. Busey, of Washington; N. S. Davis and H. A. Johnson, of Chicago; W. W. Dawson, of Cincinnati, and Geo. J. Engleman, of St. Louis. Dr. J. S. Thomas, of Savannah, Ga., also arrived to attend the meeting, but was, unfortunately, confined to his hotel by sickness. The absent members were: Drs. Austin Flint and L. A. Sayre, of New York; Geo. C. Shattuck, of Boston; H. F. Campbell, of Augusta, Ga.; T. G. Richardson, of New Orleans; D. W. Yandell, of Louisville; R. A. Kinloch, of Charleston, S. C.; L. C. Lane, of San Francisco, and R. P. Howard, of Montreal. The Committee was permanently organized by the election of Dr. Austin Flint, Sen., of New York, President; Drs. Alfred Stillé, of Philadelphia, H. I. Bowditch, of Boston, and R. P. Howard, of Montreal, Vice-Presidents; Dr. J. S. Billings, U.S.A., Washington, General Secretary, and J. M. Browne, U.S.N., Washington, Treasurer. An Executive Committee of seven members was appointed, consisting of the President, General Secretary, and Treasurer, with Drs. S. C. Busey, of Washington, Christopher Johnson, of Baltimore, I. Minis Hays, of Philadelphia, and A. Jacobi, of New York. A Finance Committee of five members was directed to be appointed by the President, subject to the approval of the Executive Committee. A liberal basis of representation for the election of delegates to the Congress by the various medical society organizations in this country, was adopted; and the work of the Congress facilitated by the establishment of eighteen Sections. The selection of officers of these several Sections was not completed, but left in the hands of the Executive Committee. If the error of selecting these mainly from the few large cities of the Eastern and Middle States is not committed, we think the preliminary work of organization will have been placed on a good basis, with a fair prospect that the proposed Congress will receive the enthusiastic support of the profession of the whole country.

THE ABSENCE OF FREE HYDROCHLORIC ACID IN STOMACHS DILATED FROM CARCINOMATOUS STENOSIS OF THE PYLORUS.—It is often difficult to differentiate between simple ectasis and other chronic disorders of the stomach, notably dilatation due to stricture of the pylorus from carcinoma. Here much, as regards prognosis, depends upon the differentiation of these two conditions. The diagnosis is rendered tolerably certain by a palpable tumor, pronounced cancerous cachexia, rapid emaciation, etc. There arise cases, however, in which the problem is by no means easy of solution, and hence, in Germany, where dilatation and cancer of the stomach appear to be not very uncommon, the subject of their differential diagnosis possesses great practical interest. In 1879, Dr. Van der Velden announced in the pages of the *Centralblatt f. d. Med. Wiss.*, page 664, that free hydrochloric acid is wanting in the ejecta of stomachs rendered ectatic in consequence of carcinomatous stenosis of the pylorus. The significance of this if found to be a fact, is at once apparent. To test this point, Dr. Kredel has conducted an elaborate series of investigations in thirty-six cases of gastric ectasis presented for treatment at his medical clinic in Giessen. His results are published in the *Ztschr. f. Klin. Med.* vii, page 592, and recapitulated in the *Centralbl. f. d. Med. Wiss.*, page 665, September 20, 1884.

Seventeen were cases of simple dilatation of the stomach, while nineteen were diagnosticated in life as cancer of the pylorus with stricture and consequent ectasis. The reagents used in the detection of free hydrochloric and lactic acids were "tropæolin," (a red dye) "methylviolet," (a blue dye), and according to Uffelmann's method the carbolate of the chloride of iron (*Eisenchloridcarbol*). This last test is

said to be both delicate and accurate, since a solution of the carbolate of the chloride of iron is turned from amethyst-blue to yellow by lactic acid when only of the strength of $^1/_{20}$ of one per cent., while hydrochloric acid of same strength changes the solution to a steel-gray color. If this latter acid be present in larger amounts, it completely decolorizes the solution. When both acids were suspected to be present at the same time, a speck of fibrin was subjected to the digestive action of the filtered portion of the vomited matters, this action being delayed if hydrochloric acid was absent. In every one of the seventeen cases of simple ectasis this acid was found to exist, the tests for its presence being frequently repeated through a number of months. It is interesting to note that in one case presenting extreme anæmia with consumption, in which the post-mortem examination revealed a circular ulcer of the stomach as the cause of the gastric disorder, that in this case the acid in question existed in the stomach notwithstanding the patient's having been supported by nutrient enemata. On the other hand, hydrochloric acid was not found in the nineteen cases of carcinoma with two exceptions to be referred to presently. The diagnosis was confirmed in five of these cases by an autopsy, whereas in the others all doubt was removed by the development of a palpable tumor, the cancerous cachexia and additional concomitant symptoms. In one of the five cases examined after death, hydrochloric acid appeared for one month, after having been wanting in preceding investigations; and during the month of its reappearance, the improvement in the patient's general condition was very perceptible. One other case, where, however, no post-mortem was obtained, also presented the acid for a limited time with visible amelioration of symptoms.

On the whole, therefore, the results of Dr. Kredel's researches are highly satisfactory, and go to verify Dr. Van der Velden's proposition. The two exceptions mentioned may be really regarded as equally confirmatory, since the reappearance of this normal acid of the gastric juice lasted for but a month. Dr. Kredel considers this subject one of great diagnostic and prognostic import. It is full of interest in many respects. It suggests two questions, viz.: Is this acid wanting in all cases of carcinoma ventriculi, whether located at the pylorus or elsewhere? How does the existence of carcinoma achieve the disappearance of the acid? Furthermore, the marked improvement associated with, and probably occasioned by, the reappearance of the acid is of practical interest as affording a hint for the medicinal treatment of these unfortunate cases. We trust some may be found among our countrymen who will emulate our German colleagues in their patient, painstaking investigations in this field.

New York State Medical Association.—The very general interest felt by the profession in the progress of re-organizing the profession in the great State of New York in harmony with the society organizations of other States and of the Nation, has caused us to leave out some items intended for this number to make room for the proceedings of that Association, the address of its first President, and the letter of our New York correspondent. All our readers will be gratified with the marked success that characterized the recent meeting, and we hope all will give particular attention to that part of Dr. Didama's address relating to the relative importance of the study of therapeutics and the practice of medicine.

SOCIETY PROCEEDINGS.

PROCEEDINGS OF THE NEW YORK STATE MEDICAL ASSOCIATION.

(*Continued from No. 22, page 610.*)

This fracture, he thought, was more common than was generally supposed; but its positive diagnosis was very difficult, if not impossible, and the object of the paper was to call attention to the danger of too much manipulation, as uncomplicated cases would get well without any treatment except rest. He presented a specimen in which the fracture extended in three directions and involved the os innominatum.

Dr. J. G. Orton, of Broome county, read a paper entitled, "A Case of Tubal Pregnancy, at Full Term, of Fourteen Years Standing—Autopsy." A spontaneous opening was formed into the rectum about four inches above the anus, and most of the bones of the fœtus had been withdrawn by this means when the patient died of diarrhœa, which was then epidemic in the neighborhood where she resided.

Dr. Nathan Bozeman read a paper on "A Case of Tubal Pregnancy, Considered in relation to Rupture of the Tube, Diagnosis and Treatment." The cyst ruptured on the 13th inst., but as the case was mistaken for one of pelvic hæmatocele by the attending physician, it was more than a week after the rupture that laparotomy was performed by Dr. Bozeman. The enlarged tube was removed and the hæmorrhage effectually controlled, but the patient died thirty-three hours after the operation.

Cases of extra-uterine pregnancy were referred to by Drs. Isaac E. Taylor, Arnold, Ross, Newmann and Squibb.

Dr. Charles S. Bull, of New York, read a paper on "Hydrochlorate of Cocaine in Ophthalmic Sur-

gery, in which he referred to its effects (1) in producing anæsthesia of the sensory nerves of the cornea and conjunctiva; (2) on the pupil and (3) on Accommodation. The drug he considered of inestimable value in the relief which it afforded the ophthalmic surgeon from the thraldom of ether and chloroform.

Dr. Mitchell spoke of the value of bromide of ethyl as an anæsthetic in ophthalmic surgery. Anæsthesia could be produced with it in two or three minutes, and he believed it was perfectly safe for short operations at least.

SECOND DAY—EVENING SESSION.

Dr. Frederick W. Putnam, of Brown county, read a paper on a "Case of Dislocation of the First Phalanx of the Thumb Forward."

This he considered a rare accident, as he had been able to find but few cases recorded in the medical literature of this country.

Dr. John P. Gray, Superintendent of the State Asylum, at Utica, read a paper on "Insanity—Preventive Measures."

He believed that there were a large number of cases of insanity which could be prevented if at the very outset they receive proper hygienic and medicinal treatment and were surrounded with proper mental influences. For sleepless conditions he considered wholesome food and tonics, with bathing, suitable exercise, etc., much better, as a rule, than hypnotics and narcotics, which might be productive of much injury.

Dr. Stephen Smith, of New York, read a paper on "Excision of the Knee in Preference to Amputation in Certain Deformities of the Leg."

This preference was founded both on the comparative safety of the operation, as shown by statistics, and the unquestionable advantage in point of usefulness, of a leg with an anchylosed knee-joint over a stump. The paper was dicussed by Dr. S. W. Gross, of Philadelphia, and Dr. Moore, of Rochester.

Dr. George T. Harrison, of New York, read a paper on "The Curette—Its Place and its Power in Uterine Therapeutics."

While many authorities were opposed to the use of this instrument, he believed it to be one of great value when resorted to with discretion, and he discussed the conditions in which its employment was called for, and the best method of employing it in appropriate conditions. For the removal of almost all soft growths within the cavity of the uterus, as well as the retained membranes, or other remains of the products of conception after abortion, it was of good service.

Dr. Frederick S. Dennis, of New York, read a paper on "The Relations between Tuberculous Joint Disease and General Tuberculosis."

He read the history and presented the specimens from a case in which he performed amputation for disease of the wrist-joint which was characterized by the presence of bacilli tuberculosis, and the patient afterward died of acute miliary tuberculosis. There could be no doubt, he thought, at the present day of the tuberculous origin of joint disease in a large number of cases, and he believed that tuberculous affections always spread from local foci.

Dr. Gross fully confirmed Dr. Dennis's views, and thought that an early operation was always demanded to save the patient from general tuberculosis. The disease was at first purely local, but was autoinfectious, and he thought that the analogy between it and cancer was almost perfect.

Dr. Wm. T. Lusk, of New York, read a paper on "The Management of Breech Cases in which the Lower Extremities are extended upward Parallel with the Body of the Child."

When the feet could not be reached by the hand without resorting to force, and it was impossible to hook the finger in the groin, the resort to instruments often became necessary. For this purpose he preferred the forceps to any other, especially with the tractors of Tarnier, and he did not believe that with proper care there was danger of doing the child any injury. After the forceps in point of usefulness he placed the fillet, and then the blunt-hook. If the child was believed to be dead the best instrument to use was the cephalotribe.

Dr. Thomas H. Manley, of New York, read a paper on "Women as Midwives," in which he advised the establishment of schools for the proper training of midwives, since statistics showed that one-third of the wives of the workingmen were never attended in their confinements and there was great room for improvement in the women now generally engaged in the work.

THIRD DAY—MORNING SESSION.

Dr. Flint offered resolutions, which were unanimously adopted, tendering congratulations and thanks to Mr. Andrew Corrigan for his gift of $50,000, to establish a pathological laboratory at Bellevue Hospital Medical College, and to Mr. Wm. H. Vanderbilt for his gift of $500,000 to the College of Physicians and Surgeons.

Election of Officers.—The following officers for the ensuing year, proposed by the Committee on Nominations were unanimously elected: President, Dr. John P. Gray; Vice-Presidents, Drs. W. H. Robb, of Montgomery county; J. G. Orton, of Binghamton; H. C. Green, of Buffalo; and J. C. Hutchinson, of Brooklyn. New members of the Council: First District, Dr. Wm. Gillis, of Franklin county; Second District, Dr. R. C. McEwen, of Rensselaer county; Third District, Dr. Frederick Hyde, of Cortland county; Fourth District, Dr. Darwin Colvin, of Wayne county; and Fifth District, Dr. J. W. S. Gouley, of New York county. President Gray appointed Dr. S. S. Purple, of New York, member of the Council at large.

Dr. Austin Flint, Sr., of New York, delivered an address on "Medicinal and Non-Medicinal Therapeutics," in which he painted with pleasant satire the pharmaco-maniacal doctor, who was carried away with every new remedy that was advertised in the market, and his opposite extreme, the skeptical doctor, who did not believe in drugs at all. Much more, however, could be accomplished without the aid of medicines than was generally supposed, and though it was now much harder to withhold these than to give them, he thought the time was approaching

when patients would be content to accept the physician as a general counsellor, and not feel aggrieved because he entrusted them to the healing power of Nature when drugs were likely to be harmful rather than beneficial. In speaking of non-medicinal agents, he dwelt for some time on the use of alcohol, which he regarded as a very valuable agent in disease, not only as a stimulus, but as a food, a germicide, and an apyretic. He also spoke of the phrase "catching cold" as something of a bugbear handed down from the past. The prejudices against fresh air and ventilation in the sick-room, which Sydenham was the first to combat, still continued to a certain extent, but it was well to remember that but few diseases really proceeded from cold, and especially that a fever patient never catches cold. In conclusion, he spoke of the beneficial influence which the physician could bring to bear on the mind of the patient, and said that a reliable work on mental therapeutics was a desideratum in medical literature.

Resolutions of Sympathy for Professor Sayre.—Dr. Gouley having announced that on account of illness Dr. L. A. Sayre would be unable to give the demonstration at Bellevue Hospital which had been set down in the programme, Dr. Flint offered resolutions, which were unanimously adopted, to the effect that the Association tendered to him its deepest sympathy on account of his prolonged illness, with the earnest hope of his speedy recovery. A vote of thanks was passed to Dr. Gouley for his indefatigable services on behalf of the Association, and in making the present meeting such a success; after which a brief address by the President-elect, Dr. Gray, who was introduced by Dr. Didama, was made.

AFTERNOON SESSION.

Dr. Gaston Griswold, of New York, read a paper on "False Albuminuria." This, he said, included two classes of cases: *First*, those in which the urine does not contain albumen, but a precipitate resembling albumen under ordinary tests; and, *second*, those in which albumen is present in the urine, but does not come from the kidney. The substances giving precipitates resembling albumen were the phosphates, mucus in excess, uric acid, peptones, and resinous drugs like copaiba, and he described in detail the means of differentiating them from albumen. Albumen in the urine not coming from the kidney might be due to blood, pus, and prostatic or spermatic fluid.

The following papers were read by title: "Commonsense *versus* Hypothetical Medication in Treating Chronic Diseases," by Dr. Jonathan Kneeland, of Onondaga county; "Cerebral Epilepsy," by Dr. C. F. Macdonald, of Cayuga county; Report of a Case of Gunshot Wound of the Stomach—Recovery," by Dr. John H. Hinton, of New York; "Stretching of Nasal and Supra-Orbital Nerves in Ciliary Neuralgia," by Dr. C. E. Ross, of Chemung county; "Organic Disease of the Brain not a Constant Factor in Insanity," by S. T. Clark, of Niagara county; "Supporting the Perinæum in the Act of Parturition," by Dr. Jacob Hartmann, of New York.

Dr. Samuel W. Smith read a paper on "The Early Use of the Knife in Nævus of the Cavernous Angioma Variety as Contrasted with other Modes of Operation for Removal." He preferred the knife (with which he had also accomplished excellent results), as he had seen two cases in young children which nearly proved fatal from pyæmia, after operations with needles.

Dr. E. G. Janeway, of New York, read a paper on "Abscess of the Liver." The difficulties of diagnosis and the methods of treatment were illustrated by seven cases which he had met with during the past year. Four of the patients recovered and three died. Three were operated on, and in one instance the abscess opened spontaneously. In the etiology he thought traumatism was a more frequent factor than was generally supposed, and that it was very likely to be overlooked.

Dr. J. Lewis Smith read a portion of an elaborate paper on "Diphtheritic Croup." In the treatment he relied principally on inhalations of turbid lime-water to which 1½ per cent. of liquor potassæ had been added. He also spoke well of a new solvent for fibrinous exudations, tripsin, which was largely contained in *extractum pancreatis*, and he advised that the pancreatic extract should be added to the alkaline inhalations. Time did not permit him to speak of the bichloride of mercury.

Dr. J. P. Garrish, of New York, said he had obtained excellent results with the latter, giving five drops of a solution containing one grain to the ounce every hour to a child two years old, and Dr. Moore had been very successful with the insufflation of bicarbonate of soda, and Dr. Rochester had used with success insufflations of one part of iodoform to two of bismuth.

Dr. Austin Flint, Jr., of New York, read a paper on "Typical Cases of Diabetes Mellitus not before Reported."

These were additional to the fifty cases a report of which he had read at the last meeting of the American Medical Association; and which had been published in the JOURNAL of the Association of July 12, 1884. In one the prognosis was bad, as the patient for a year when the disease was at its highest had indulged in the inordinate use of sweets, and the case was also complicated with renal difficulty. In the other three the sugar had at once disappeared under the use of anti-diabetic diet and Clemens's solution of arsenite of bromine, and had never reappeared. The ages of the patients varied from 15 to 59 years.

Dr. T. W. Ross, of Chemung county, read the report of a "Case of Rupture of the Uterus," in which the entire fœtus (a full grown child at time), membranes and placenta escaped into the abdominal cavity; constituting the second case of the kind on record, so far as he had been able to discover. Specimen exhibited.

Dr. R. B. Bontecou, of Rensselaer county, exhibited a patient who constituted a "Case of Conservative Surgery." The man had received a gunshot injury of the shoulder-joint. Resection had afterward been performed, as much of the periosteum as possible being left, and several inches of the humerus had afterward been restored by nature.

Dr. J. W. S. Gouley, of New York, read a paper on "A Case of Ligature of the Primitive Iliac Artery for Diffuse Aneurism of the External Iliac Artery." The patient died on the 19th day, of pyæmia, and Dr. Gouley regretted that he had not applied a second ligature and opened the sac, in which case he thought the man's life would have been saved. The case was discussed by Drs. Moore, of Rochester; Fifield, of Boston, and Nancrede, of Philadelphia. The Association then adjourned.

In the evening the Fellows residing in New York county entertained the Association at a banquet at the Murray Hill Hotel, and on the day following, after seeing the exhibition of bacilli and surgical cases and operations at Bellevue Hospital, went on an excursion to the hospitals and other institutions on Blackwell's, Ward's and Randall's Islands.

CHICAGO GYNÆCOLOGICAL SOCIETY.

Regular meeting of the Chicago Gynæcological Society, at No. 535 Washington Boulevard, the President, H. P. Merriman, in the chair.

Dr. Edward Warren Sawyer opened the discussion on the "Treatment of Abortion." Dr. Sawyer called attention to the frequency of the interruption of pregnancy before fœtal viability. Madame La Chapelle says abortions are as frequent as labors at full term. The experience of the profession opposes this generalization. In his own practice, extending through a period of ten years, he had only seen from forty to forty-five abortions. As illustrative of the wonderful conservation and care of nature in these cases, he had never met with a fatal case in his own practice, and had seen but one fatal case in the practice of his medical brothers. This fatal case was complicated by cellulitis and pneumonia.

As to causation, abortions are divided into two classes: (1) those occasioned by natural processes; (2) those induced by accidental or intentional violence. The former class usually terminate favorably; the latter class are the *bete noir* of the physician. It is a matter of medico-legal interest, that in abortions resulting from natural processes, *i. e.*, fatty degeneration of the decidua, the ovum and decidua are expelled, as a rule, in an intact condition, while in criminal abortion, the product of conception is expelled in a more or less mutilated state. When the ovum has been mutilated, the embryo is extruded from the cavity of the uterus, before the fœtal envelopes and decidua, and is frequently lost. Moreover, the embryo, so late as the fourth month, may be completely aborted. The absence of the fœtus cannot be regarded in the differential diagnosis of abortion, molar pregnancy, or intra-uterine fibroids. Two distinct courses, as to the treatment of abortion, have been adopted by the profession. The radical method of immediate evacuation of the contents of the uterine cavity, and the plan of patient waiting have been, in turn, defended and opposed. Dr. Sawyer has followed the expectant mode of treatment. He waits and allows nature to effect the expulsion of the product of conception. He has waited as long as one week. He has been encouraged in this line of treatment, by the fact that he has never seen any untoward consequence in the cases managed in this manner. He enjoins absolute rest in the horizontal position, and the exhibition of quinine and alcohol, as required. Local treatment, apart from the vaginal tampon, is limited to vaginal injections of chlorinated soda. He has never noticed hæmorrhage or inflammatory action as the result of this course of action. He objects to the removal of the whole or part of the product of conception from the uterine cavity, because, (1) it is a painful procedure, involving the use of ether, and predisposing to hæmorrhage from uterine inertia; (2) an assistant is necessary; (3) the amount of unavoidable injury to the genital tract is considerable.

In conclusion, Dr. Sawyer exhibited an unusual specimen. The specimen consisted of an intact, amniotic sac, enclosing a five months' fœtus, with filamentous insertion of the umbilicus cord. Separation had occurred between amnion and chorion, the chorion, placenta, and decidua remaining within the cavity of the uterus. He had been called to see the woman, five months advanced in pregnany, who was suffering from uterine contractions and hæmorrhage. After a brief interval the specimen presented to the Society was expelled. Noting the intact condition of the amnion, Dr. Sawyer paid no further attention to the mass, told the woman to fear no more trouble, and went home. Next morning, upon visiting his patient, he was informed that one hour after his departure, under renewed hæmorrhage and uterine contractions, another mass was expelled. The second mass proved to be the chorion, placenta and decidua. A medical friend, Dr. Albert G. Paine, had observed a strictly similar case.

DISCUSSION.

Dr. W. W. Jaggard said separation between the amnion and chorion was relatively infrequent during the sixth and seventh months, but was not uncommon prior to that period. In regard to the treatment of inevitable abortion when the ovum was expelled in an intact or mutilated condition, and decidua or portions of the fœtal membranes remained within the uterine cavity, it was necessary to regard the natural history of the condition. This condition had been appropriately termed by Breslau "incomplete abortion." The terminations are briefly:

(a) Spontaneous elimination of that portion of the product of conception remaining withing the uterine cavity, as the result of retrograde metamorphoses, accompanied by intermittent hæmorrhages and uterine contractions.

(b) Sometimes, though seldom, hæmorrhage ceases entirely, and the patient is apparently well. This interval varies from a few days or weeks to months. Suddenly hæmorrhage and pain occur and the intra-uterine mass is expelled. This retention, with a long interval of rest, is noticed when the placental or decidual attachments are intact. That this act constitutes the termination of the labor, so to speak, is apparent from the facts, that the milk secretion is usu-

ally established at this time, and the reductive metamorphosis is instituted.

(c) More frequently the retained decidua or placenta undergoes suppurative or ichorous changes, as the result of which systemic infection is liable to occur despite the thrombosis of the uterine sinuses, and the proliferative change in the uterine mucosa.

(d) The retained placenta or decidua may become converted into placental or fibrinous polyps—conditions which always require operative interference. All four terminations present sources of danger to the mother. From this glance at the natural history of the condition, for the elucidation of which Spiegelberg deserves especial recognition, the weight of evidence lies in favor of the so-called radical treatment. Empty the cavity of the uterus at the earliest possible period. The plan recommended by Dr. Mundé, in the February number of the *American Journal of Obstetrics*, 1883, was worthy of high commendation. One finger within the uterus, one hand on the fundus was preferable to instruments, when equally effective. The subsequent treatment was one of extreme importance.

Whenever the cavity of the uterus is invaded by the finger, or any instrument, it must be irrigated by some antiseptic solution. Two per cent. solutions of carbolic acid, or one to two thousand of the bichloride of mercury, are efficient in the destruction of conditions favoring decomposition and sepsis. After irrigation of the cavity of the uterus, it was a good plan to introduce within the uterus a *bacillus* of powdered iodoform, weighing at least six grammes. Symptoms of iodoform intoxication rarely, if ever, followed the exhibition of this quantity. Ten grammes are usually required to produce toxæmia.

Dr. Philip Adolphus said that abortions were more frequent among multiparæ than primiparæ. In the way of prophylactic treatment, he thought women ought to sleep by themselves during the time corresponding to their menstrual periods. Among the upper classes in Europe, it is customary for man and wife to sleep in separate beds. He thought it an excellent plan. When abortion was inevitable, the treatment must be symptomatic. To arrest hæmorrhage, plug the cervix, not the vagina. Use tupelo, or laminaria tents, not those composed of sponge, for obvious reasons.

Use these tents. When fetor is noticed, empty the uterine cavity. For this purpose, either finger or curette might be employed.

Dr. D. T. Nelson said the dangers from abortion were (1) hæmorrhage, (2) sepsis, (3) inflammation. Rest and opium were not sufficient. He could not rest until the uterine cavity was empty. He had no sympathy with the expectant plan of treatment. The manner of emptying the uterine cavity was of importance. If the cervix was dilated, or dilatable, the cavity should at once be cleaned out with the finger. If the cervix was not dilated, nor dilatable, the cervix ought to be plugged in the manner indicated by Dr. Adolphus, with tupelo or laminaria tents. If the cervix was partially dilated or dilatable, and the uterus fixed, give an anæsthetic, relax the spasm, and proceed as in the first case. He had no fear of ether predisposing to uterine inertia. In dissecting off the placenta, it was advisable to glove the finger tips with the amnion. In the early months, when the ovum was attached near the cornua, it was necessary to bear in mind the possibility of irregular contraction, and the inclusion within either cornu of a bit of the placenta. The cornua must be thoroughly explored. When he employed intra-uterine irrigation—by no means an invariable method of treatment—he used a ½ per cent solution of carbolic acid, or a dilute solution of ordinary table salt. The solution must be hot, 110° to 120° F. Hot water, in the absence of carbolic acid or salt, was effective as a cleansing agent, and as inducing uterine contractions. Dr. Nelson had had no experience whatever with iodoform, but regarded it as superfluous in all cases.

Dr. Wm. E. Clarke was more afraid of hæmorrhage and sepsis than of inflicting injury upon the genital tract. He always emptied the uterine cavity at the earliest possible period.

Dr. T. D. Fitch did not consider Dr. Sawyer's specimen a rare pathological occurrence. He had seen the same separate at the same time frequently. He agreed with Dr. Nelson in treatment. Still, when the cervix was not dilated he was disposed to pursue the expectant line of treatment. At the time of the occurrence of abortion the uterus was in a physiological condition; operative interference at a later period was attended by increased risk, as the uterus was then in a pathological state. Usually he found the placenta and membranes detached within the lower segment of the uterus. As he had a large hand with short fingers, he employed the placental forceps of Hodge, Dewees, Elliott and Roler. Once in the country he used an ordinary pail bail, with the rough edges filed off. He was not in favor of intra-uterine injections. The vaginal douche was sufficient.

Dr. Wm. H. Byford said that abortions were more frequent in large cities than in the country. Madame La Chapelle's estimate of the frequency of abortion was not exaggerated when applied to large communities. In the country he thought one abortion to three labors at term represented a fair average. Abortion was never a physiological process, although abortions from disease of the ovum were attended with less danger than those resulting from morbid uterine changes. In disease of the ovum, the circulation was impaired, the embryo perished, and expulsion followed with the minimal degree of hæmorrhage, pain and sepsis. When the cause of abortion was external violence, or decidual endometritis, danger in each of these three directions was increased. The specimen exhibited by Dr. Sawyer, was of rare occurrence at so late a period; it was comparatively common during the early months.

As regards the prophylactic treatment, he had observed two clinical facts in connection with the habit of abortion. Where uterine contractions were the prominent symptoms, abortion could be arrested in many cases by absolute rest and opium. Where hæmorrhage was severe, all attempts at arresting the process were usually futile. This was especially true during the first three months. At a late period even

when hæmorrhage was slow, abortion might be arrested.

In regard to the treatment of inevitable abortion, he had never seen the time when champions of the expectant and radical courses of action did not exist. The treatment must be governed by the consideration of the individual case. In any case, the patient must be carefully watched. He had never seen a case of abortion terminate by immediately fatal hæmorrhage. The acute anæmia, however, might induce a condition which would render the woman more susceptible to sepsis, or any intercurrent disease. He feared sepsis and metro-peritonitis more than hæmorrhage. He was conservative as to operative interference. Let nature do what she can; only in case of failure on her part, interfere. The finger was preferable to any instrument. Then it was not necessary to insist upon the removal of placenta or membranes with mathematical accuracy. If the placenta was grasped by an irregularly contracted uterus, cut off the free portion, allow the rest to lie in the uterine cavity. If two-thirds of the placenta were removed, and the uterus well contracted, the case was to be considered in a safe condition. In event of sepsis, remove all the intra-uterine mass.

Dr. John Bartlett stated that in his practice abortions were as frequent as labors at term. The product of conception was usually expelled in its integrity. When abortion was inevitable, two conditions were required before operative interference was justifiable: (1) Dilatation of the canal of the cervix to the extent necessary for the passage of two fingers; (2) the separation between decidua and the uterine mucosa must be more or less complete. Until these conditions were present, the vagina ought to be tamponed. For a tampon he was in the habit of employing bits of cotton, tied on a string, in the manner of the kite-tail.

He had seen two cases in which the placenta had remained for a long period of time within the uterine cavity without causing symptoms. The retention in one case lasted through a period of three months; in the other case the period was four months. As to the length of time the tampon could be left *in situ*, he had adopted Dr. DeLaskie Miller's rule of allowing it to remain twenty-four hours. He had frequently tamponed through three days. The colpeurynter of Braun was a useful tampon. No tampon was effective when the hæmorrhage was not of a passive character, and uterine contractions were severe.

It was necessary to diagnosticate between placenta prævia and abortion. Placenta prævia implied simply an *error loci* of the ovum. It was included between the ring of Baudl and the external os. Dr. Bartlett had never seen a case of abortion terminate fatally from hæmorrhage.

Dr. A. H. Foster had seen one case of retained placenta, in which the retained mass gave origin to no serious symptoms for a period of four months. The importance of subsequent treatment of the puerperium was urged.

Dr. E. C. Dudley referred to the dangers of cervical laceration, and subinvolution, in consequence of abortion. The best method of applying the tampon, was by means of Sim's speculum.

Dr. C. W. Earle occupied the middle ground between the expectant and the radical methods of treatment. He did not agree with Dr. Mundé.

Dr. H. P. Merriman, after indorsing Dr. Byford's remarks on the ætiology of the condition, said that he did not like to use ergot in these cases, as it caused irregular contraction of the internal os, imprisoning the placenta, without favoring its expulsion. He produced uterine contraction by dilating the os, and then followed the expectant plan of treatment.

Dr. E. W. Sawyer, in closing the discussion, said that he had observed abortion in the lower animals, and concluded nature required little interference. He then briefly sketched the line of expectant treatment which he was in the habit of recommending.

Dr. John Bartlett then exhibited some casts of the pregnant and non-pregnant uterus for the purpose of class illustration. The idea is an extremely ingenious one and will receive attention at an early period.

The Society adjourned to meet Dec. 19, at the residence of the President, Dr. H. P. Merriman, No. 1350 Michigan avenue.

Subject for the discussion, "Extra-uterine Pregnancy;" to be introduced by Dr. Wm. H. Byford, by a paper "On a Case of Interstitial Pregnancy."

W. W. JAGGARD, M.D., *Editor.*

2330 Indiana avenue, Nov. 22, 1884.

FOREIGN CORRESPONDENCE.

BERLIN LETTER.

BERLIN, November, 1884.

There seems to be a somewhat divergent opinion among professors and students as to the necessity of matriculation. On the whole, however, it is better to do so, as it gives one a much greater license and independence. To this end a *passport* is absolutely necessary. A *diploma* will not suffice. As preliminary to the ordeal one must go to the *Registrar*, and obtain a ticket which permits him to appear before the Rector in the Senate Chamber, at a certain hour upon a certain day. At the hour specified he presents his passport, and his credentials are issued upon payment of 18 marks. His student card is sufficient guarantee to the police, as his passport is retained by the Academy until the close of the semester.

The academy exercises surveillance over all of its students, none of whom can be arrested for cause or confined by the police, as the college provides cells for imprisonment. Among very many papers received upon matriculation, is the "Anmeldungs-Buch des Studirenden," etc., in which the student enters the list of studies he may wish to follow, the other columns being devoted to the Quæstor's financial entry, to the number of the student's seat in the auditorium, the signatures of the Docent, date of announcement, etc., etc. For the list of lectures, the hours, and places where such lectures are held, the student must provide himself with the "Verzeich-

niss der Vorlesungen" which can be had at any book store for a few pfennigs. Having selected and entered such studies as he desires, he will next apply to the Janitor for a ticket (Karte zum Belegen der Vorlesungen in der Quæstorei), which gives him the privilege of paying to the Quæstor, or Treasurer, upon a certain day, the small fixed sum for the public lectures which he has elected. For private courses he must apply directly to the professor himself. In Gynæcology, Dr. Landau gives an excellent course (private) at 40 Lottringer Street, 2d floor, on Tuesdays and Saturdays, from 11–1 o'clock. Price, 50 marks.

He has lately had an exceedingly interesting case of hysterical hemianæsthesia, the notes of which he has consented to give me.

Dr. Martin holds private clinics for medical men on Elsasser street, No. 85, but as the number is limited, it is necessary to secure a seat sometime before the beginning of the term. His lectures for students are held in the same building from 1 to 3 o'clock. Dr. Schroder's clinics are in the hospital on Artillerie st. Dr. Gusseron has clinics on obstetrics in Charite and on Ziegel street. Drs. Veit, Hoffmeir (Asst. to Dr. Schroder) and Dr. Wyder, give Gynæcological clinics. Dr. Mayer on Puerperal Fever. Indeed, the opportunities for the gynæcologist in Berlin are probably greater than in any other city in Europe. Dr. Hirschberg is extremely popular among the eye students. He has his clinic on Karl street, and his command of English, together with his geniality and courtesy, attract students from all nations to his rooms. Dr. Schweigger's clinics are also well attended. Dr. Wolf and Dr. Fritsch give clinics in special pathology. And that *αναχ ανδρων*, Virchow, continues to draw his hosts from among all ranks. For operative clinics upon eye diseases, for gynæcology, for general pathology and electro-therapeutics, the university of Berlin offers large inducements to the student. For the obstetrician, Vienna and Munich are probably better, while Heidelberg and Strassburg are celebrated above all other places for special pathology and histology. It will take at least a month for the student to get settled, both as to living arrangements and clinics. For the system is complicated and clinics are held in all parts of the city. Without a good knowledge of German one can make very little, if any, progress. A great mistake is in attempting too much, or in the endeavors to accomplish certain aims within a given period altogether too short for its consummation. A man can learn very much here if he goes about it systematically, and manages his courses advantageously. The chances for original research and laboratory work are very good.

At the Medical Society meeting, Nov. 5, Prof. Virchow presiding, Dr. Behrend exhibited some rare forms of pigmentary skin disease. Dr. Friedlander discussed a paper on Diphtheria, which had been read at a previous meeting. He thought that pepsin had little or no influence upon the course and severity of the disease. Prof. Virchow lectured on a "Rudimentary Tail" before the Anthropological Society. A wonderful man he must be who can cope so successfully with so many diverse subjects, including politics. A man may eat pork here in comparative safety. At the slaughter houses every pig is numbered and so is the pen in which he is placed. Twenty-four sections of this animal all bearing his number are examined by experienced microscopists, male and female, who have been employed for years in this routine and have become wonderfully expert. It requires practice to detect trichinæ readily—and I saw some very beautiful specimens—any doubtful case is referred to the microscopist in charge. It would seem to be impossible for diseased pork to escape detection.

Dr. Gusseron tells me that there are about 1,200 cases of labor a year at Charite, and about 800 outside of the hospital which are attended by the students under the direction of his assistants; at the polyclinic, No. 51 Luisen street, under the direction of his 3d assistant, and which has special direction over the ambulance system, there are treated over one thousand gynæcological cases annually. I saw two cases of acephalous monsters, one of premature delivery, due to syphilis, and one of spontaneous delivery of a fœtus with rachitis and hydrocephalus. There was one woman, with a contracted pelvis, in whom labor was being induced. In a previous confinement the cephalotribe was used. There was also a case of Emmet's operation well on to recovery, two ovariotomies, one laparotomy, and four amputations of the vaginal portion of the cervix, all convalescing. Dr. Gusseron has removed the uterus through the vagina with very fair results, but Freund's operation is never resorted to. He thinks we operate too often in the United States. His private clinic from 9 to 10 is very enjoyable, and the one from 3 to 4 is always crowded.

He showed me with evident satisfaction a room devoted to cases of puerperal septicæmia, which at the time was *empty*. As a fair sample of daily work for the gynæcologist we will take Saturday, Nov. 8. From 9 to 10 in the morning at Charite, there were dressings made to Emmet's operation, to two perineal lacerations, and to the stumps remaining from amputations of vaginal cervices. First of all, before the dressings were removed, the external genitals were washed with carbolized water; then after removing the dressings, the vagina was washed out with the same antiseptic; iodoform powder was blown from the insufflator over the parts, and iodoform gauze tampons packed in. These dressings were all attended to by an assistant. Dr. Gusseron then removed both ovaries for papilloma. The room was thoroughly permeated with the carbolic spray, the arms and hands of the assistants were washed in a bichloride of mercury solution, and all instruments were kept in carbolic water. Dr. Gusseron had made his diagnosis the previous day and its direct confirmation by the operation was flattering. He used about seven ligatures on both sides. The operation was completed within the half hour. There are so very few persons allowed to be present at these clinics that they are very valuable as affording rare opportunities of observation.

From here the student will go to Dr. Landau's clinic at 40 Lottringer street, which commences at eleven. Dr. Schroder's clinic is at 10 o'clock in Artillerie street, but that can be had daily, while Dr.

Landau's are only held twice a week. Here we find two cases of metritis, two cases of uterine catarrh, two cases of uterine hæmorrhage, one case of anteversion with parametritis and specific inflammation of the ovary, one case of laceration, and of vegetations in the uterus. The number of students is limited to so small a number, that each man can make his own examination. Dr. Landau believes largely in uterine injections and uses saturated solutions of iodoform with alcohol, and strong tincture of iron much more frequently and boldly than is our habit at home. He also uses pyrogallic acid in ectropion of the cervical mucous membrane, and believes that the operation for laceration of the cervix is performed far too frequently in the United States. These clinics are among the most popular given in Berlin. Dr. Martin's clinics are so thoroughly known and admired, that it is difficult to join a class. But his instruction is perfect, and the opportunities for personal observation unsurpassed.

After this there are two private clinics on Gynæcological Diagnosis, and a lecture from 4 to 5 by Prof. Gusseron, another private course in the evening from 6 to 7, on minor gynæcology. Dr. Schroder has operations almost every day, and his auditorium is so crowded that only a few can see what is going on. Dr. Welch, late of New York, and now of Baltimore, has gone to Munich for special work with Dr. Koch's former first assistant. Dr. Lucien Howe, of Buffalo, has been working up the subject of the action of cocaine. H. R. B.

LONDON LETTER.

LONDON, November, 1884.

Mr. Elliott, vice-chairman of the Islington Board of Guardians, at a meeting of that body stated that on making inquiries the other day he found that at the Western Hospital of the Metropolitan Asylums' Board there was only one patient under treatment, whilst the officers' salaries, uniforms, etc., of that single hospital were costing the rate-payers £4,000 a year. Since then two other fever patients had been admitted, so that the hospital was now being kept open for three patients, at the cost of about £80 a week. Several members remarked upon the great extravagance of the Asylums' Board and waste of the rate-payers' money, in keeping the hospital open at such an enormous cost for two or three patients.

Dr. S. Rabbeth, senior Medical Officer of the Royal Free Hospital, in Gray's-inn road, died in that institution on Monday night, in consequence of a too-zealous devotion to a patient. On Friday week a child, aged four years, who was an in-patient suffering from diphtheria, it was found necessary, for the purpose of saving life, that tracheotomy should be performed. This was done by Dr. Rabbeth, and the obstruction not being removed, it then became necessary that some one should suck the matter through the tube. Dr. Rabbeth at once volunteered. The effect was that he relieved the patient very much for a time, but the child subsequently sank and died. Dr. Rabbeth some days afterward was taken with symptoms of diphtheria, and in spite of all treatment he gradually got worse and expired. Dr. Rabbeth was only in his twenty-eighth year, and was greatly respected.

Much has been heard during the last two or three years of the deleterious effects arising from the combustion of our open stoves, and remedies have been ardently sought in the smoke-abatement question. Probably, however, few have realized the beneficial action of the rain as a washing agent of the London air. During the last two years the Meteorological Council, through the coöperation of Dr. W. I. Russell, lecturer on chemistry at St. Bartholomew's Hospital Medical School, have been carrying out a series of experiments, having for their object the thorough examination of London rain. The principal impurities in the rain of our large towns are known to be sulphates and chlorides, and the amount of these salts present in the London rain has been systematically determined by Dr. Russell, and in a few cases other impurities have been looked for. Three principal stations were used for collecting the rain—one in the city at St. Bartholomew's Hospital, another at Upper Hamilton Terrace, in the northwest of London, and the third at Hackney. The rain collected at St. Bartholomew's was always more or less dirty from soot floating in it, and disagreeable to taste. The results at the three stations show that city rain contains twice as much impurity as that collected at the suburban stations, and that the impurities at all the stations are in the same proportion. If the city rain is diluted with very nearly an equal bulk of water, it agrees with the rain collected in the suburbs. But although the amount of impurity at the three stations differs largely, it varies but very little with regard to the composition. It was noticed that when the impurities were high or low at one station, they were similarly affected at all stations. The experiments indicate that the summer rain is more impure than the winter rain.

The total amount of salts at St. Bartholomew's was nearly three times, and at the other two stations nearly twice as much, in the summer as in the winter six months, and there is in the summer at each station an increase in the amount of sulphates over the chlorides. Dr. Russell attributes the principal cause of the increase of impurity in the summer to evaporation, and he considers the most probable explanation of the increase in the proportion of sulphates in the summer to the decomposition of animal and vegetable matter. The impurities are found to be much greater in specimens chosen at the early stage of a rainfall than after rain has been falling for some time, clearly showing the purifying effect of a good downpour. Experiments were also made with samples collected near Fordham, in Sussex, and on Dartmoor, which show the amount of sulphates to be immensely less than the case of London rain. Dr. Angus Smith several years ago attributed the large proportion of sulphates over the land to vegetable and animal decomposition, and thus pointed out why it was that sulphates should increase as we leave the sea. Dr. Russell gives it as his opinion that London

rain carefully collected is never acid, as is generally supposed, but if the rain is collected in an open vessel and left exposed for a considerable time, then the water will always be acid, the acidity arising not from being washed directly out of the air, but from acid washed out of the soot so abundantly present in London air. The experiments also show that a trace of arsenic is to be found in London rain, or rather in London rain and soot.

The French Railway Companies have made arrangements to run through carriages from Calais to the various health resorts along their Mediterranean coast. So that invalids leaving England will go right through from Calais without the necessity of changing stations in Paris.

Dr. Russell Reynolds delivered the Harveian oration to the Fellows and members of the Royal College of Physicians this year. Sir William Jenner presided. Dr. Reynolds said it was not of the "unavailing tears" that were shed nearly 230 years ago over Harvey's grave that it behooved him now to speak, but rather of the fact that nearly three centuries had passed since he became part of their college, and that only last year its Fellows repaired to his grave in Hempstead to do honor to his memory. Now they sought to do homage to the life of Harvey, looking at it in its three-fold aspect of moral, mental, and active energy. Harvey's work of discovery, like all great discoveries was not unprepared. He broke the shell, and there burst forth a new thing, a new thought, a new generalization. Harvey reaped much that he had not sown, but he sowed much that others after him might reap. Dr. Reynolds referred at length to the works of Harvey; to his forecasts in the matter of disease, to his suggestion that the force which converted sterility into fertility was one that pervaded the whole body, and might last almost indefinitely, to his writings on the circulation of the blood and its local variations; to his observations on the mysteries of generation, and to his character and conduct generally. The college he said by this annual oration, handed down to coming generations the memory of him from whom they had learned so much, and to whom their debt of gratitude was larger than they perhaps as yet could know. Dr. Reynolds concluded by saying that so long as the circulation was a recognized fact of science, his work would live.

G. O. M.

DOMESTIC CORRESPONDENCE.

New York, November, 1884.

The first annual meeting of the New York State Medical Association was an unqualified success in every way, and the inauguration of the noble project under such propitious circumstances certainly argues well for the future usefulness and prosperity of the Society. It was a notable gathering of representative men from all parts of the State, and there were in actual attendance nearly 250 out of a membership of 440, while there were also present delegates from the adjoining States, as well as from Massachusetts, the District of Columbia, the Province of New Brunswick, and the medical service of the Army and Navy. The Pennsylvania State Society was particularly well represented, and in the delegation from it were included a number of the most distinguished names in the profession in the city of Philadelphia. The amount of solid work accomplished at the meeting was remarkable, and a large number of the papers presented, as well as the discussions which some of them elicited, were of a very high order and permanent scientific value. Out of a total of fifty-four papers on the list, thirty-six were read by their authors, and the rest read by title. That the occasion was not merely one of social junketing, is shown by the large number of hours taken up by the sessions, by far the greater part of which were devoted to scientific work. Thus, on the first and second days of the meeting there were three sessions, lasting from 9:30 to 12:30 in the morning, from 2 to 5:30 in the afternoon, and from 7:30 to 10:30 in the evening; while on the third and last day there were sessions of equal length in the morning and afternoon, though none in the evening.

After all this close and continuous application to business, the Association was prepared to enjoy to the fullest extent the handsome banquet which was provided for them at the close of the meeting by the Fellows residing in New York. Among the guests at the entertainment were the Commissioners of Charities and Correction of the city, and on the day following, after the members of the Association had seen an exhibition of the various bacilli and some cases and operations of Professor Dennis at Bellevue Hospital, the Commissioners placed a steamboat at their disposal, and took them on an interesting excursion to the hospitals and other institutions on Blackwell's, Ward's and Randall's Islands, in the East River.

During the meeting, as will be noticed by a reference to the proceedings, it was unanimously resolved to at once commence the formation of a library for the Association, to be located in the city of New York, and to be paid for and maintained by voluntary contributions. In advocating this measure, Dr. Gouley, to whom the conception of the project was due, spoke of the desirableness of the Fellows residing in different parts of the State feeling that they had a home in New York, the headquarters of the Association, just as the non-resident members of a London club felt about their club in town, and it was proposed that such a home for the Society should be established in connection with the library. They would have to begin, of course, in quite a humble way, he said; but in the course of time it was hoped that a commodious fire-proof building would be secured, and to this end he advised that one-half of the money subscribed to the library should be put into a sinking fund. He mentioned that there was already a nucleus for a library in the Transactions of various Societies which had been presented to the Association, and that the use of forty medical journals would be furnished free of expense. Furthermore, he announced that several hundred dollars had been promised, and that he had every reason to be-

lieve that a suitable room for present needs would be gratuitously offered for the library.

As soon as Dr. William Gillis, of Franklin county, heard of the project, he said he would present between forty and fifty volumes of either the London or the Edinburg *Medical Journal*, whichever would be most acceptable; so that already the good work is progressing.

The successful organization of the Association with such a large and distinguished membership, and the brilliant results of the first annual meeting, are due to a very great extent to the energy and indefatigable labors of Dr. Gouley, who for many months has devoted by far the greater part of his time to the rallying of the profession throughout the State to the defense of the National Code of Ethics, and it was, therefore, a well-deserved compliment that the Association paid in tendering him the only vote of thanks that was given to any one connected with it during the meeting. It is probable that at the meeting next year it will be necessary, on account of the large number of papers that will be presented, to divide the Association into two or more Sections for the better accomplishment of its scientific work, sufficient time being thus secured for discussion; and a proposition to that effect will be reported on by the Council at the beginning of the session.

On one of the days of the Association meeting there occurred the most notable event of the fashionable season in New York, viz.: the marriage of the daughter of Mr. William Astor, and the mother of the bride commemorated the happy event in a very graceful way by treating all the inmates of Bellevue Hospital, or at least all who were able to partake of such solid viands, to a sumptuous dinner of roast turkey, fricasseed chicken, and all the vegetables of the season, with a dessert of plum pudding and mince pie. Another event of immediate interest which took place at the time of the meeting, was the laying of the corner-stone, with appropriate ceremonies, of the first crematory located in the vicinity of New York The structure is being erected at Mount Olives, within a short distance of Long Island City, across the East River, and it will be seventy-two feet in length by forty feet in width; the materials of which it is built being marble and brick, and the design that of a modified Greek temple. In the body of the building, on the ground floor, will be the chapel and offices, and the basement will contain, in the rear, the furnace, which will be constructed chiefly of fire-brick, and will be adapted to coke, with a regenerator. The incinerating chambers will consist of retorts, which will exclude all fuel and flame from contact with the body and from which the volatile products of the incineration will be carried into the furnace for recombustion, no smoke being visible or odor perceptible during the process. The basement will also contain a *refrigidarium*, where bodies may be kept for an indefinite period when desired, a *calidarium*, for cases of possible suspended animation, the high temperature of which will induce speedy evidences of life or death, as the case may be, an *ædicularium*, or urn room, and also a room for making autopsies in cases where this may be required. Twenty dead bodies are already awaiting incineration here, and it is expected the crematory will be completed by February next.

The correspondence between Mr. William H. Vanderbilt and Dr. John C. Dalton, President of the College of Physicians and Surgeons, on the occasion of Mr. Vanderbilt's magnificent gift to that institution, has only just been published. In his letter the donor says: "The health, comfort, and lives of the whole community are so dependent upon skilled physicians, that no profession requires more care in the preparation of its practitioners. Medicine needs a permanent home where the largest opportunities can be afforded for both theories and practice. In making up my mind to give substantial aid to the effort to create in New York City one of the first medical schools of the world, I have been somewhat embarrassed as to the manner in which the object could be most quickly and effectively reached. It seems wiser and more practical to enlarge an existing institution, which already has great facilities, experience and reputation, than to form a new one. I have, therefore, selected the College of Physicians and Surgeons because it is the oldest medical school in the State and of equal rank with any in the United States." With the letter to Dr. Dalton was inclosed the deed of twenty-nine city lots purchased at an expenditure of $200,000 and a check for $300,000 for a building fund. It is not often that a member of our worthy but not ordinarily opulent profession has the opportunity of holding in his hands the equivalent of half a million of dollars. P. B. P.

NECROLOGY.

BEMISS, SAMUEL MERRIFIELD, M.D., of New Orleans, La., born in Nelson County, Ky., Oct. 15, 1821, died suddenly at his residence, New Orleans, Nov. 18, 1884. He was the son of Dr. John and Elizabeth (Bloomer) Bemiss. The father of the subject of this notice was a native of Massachusetts, but of Welsh extraction, and the mother a native of the State of New York. His ancestors were solid, substantial people, and some of them noted for their zeal in the cause of liberty in the American Revolution. His parents were among the early emigrants to Kentucky, and became thoroughly identified with its people, and the doctor partook fully of their generous traits and open-hearted hospitality. After receiving a fair academic education under the care of private tutors, Dr. Bemiss began the study of medicine in the office of Dr. Samuel Merrifield in the village of Bloomfield, Ky. He then attended lectures at the University of New York, where he graduated M.D. in 1846. He at once began to practice in Bloomfield, Ky., but in 1853 removed to the city of Louisville. His ability and learning had already attracted attention, and in 1858 he was elected to the chair of Clinical Medicine in the University of Louisville. His reputation increased with this enlarged field of his labors, but in 1862 he joined the Confederate cause and received an appointment as surgeon in the army.

He served with distinction in the armies of Virginia and Georgia and other places to the close of the war. Returning to his home in Louisville, he was installed in the professorship of Pathology and Physiology, a position which he held with increasing fame until 1866, when he was elected to the chair of Theory and Practice in the University of Louisiana in New Orleans, where he continued to lecture to the day of his death. Dr. Bemiss was gifted with close powers of observation, was a careful and zealous student, and from the time he became a resident of New Orleans, set himself to a comprehensive study of the diseases incident to it and its locality. His researches into the history and peculiarities of yellow fever were careful and untiring. In 1878 he was chairman of a commission of medical experts to study yellow fever as it appeared in the Southern States. In connection with Dr. Jerome Cochran, of Mobile, and others, he traveled from place to place where the disease had prevailed, and collected a vast amount of valuable information upon the subject. In December, 1878, he was appointed on a commission created by Congress, and placed under the direction of the Surgeon-General of the Marine Hospital Service. The result of this inquiry was published by the Marine Hospital Service in Washington. So thoroughly had he become acquainted with the epidemic in the South, that when the National Board of Health was organized under an act of Congress in 1880, Dr. Bemiss was named as one of its members, and served with it to the time of his death. The doctor early identified himself with medical organizations, and was a valuable contributor to their discussions and their literature.

He was a member of the Kentucky State Medical Society, of which he was Treasurer and Secretary; the College of Physicians and Surgeons of Louisville, of which he served as Secretary and Vice-President. Dr. Bemiss held the office of State Registrar of Kentucky for some time. A member of the American Medical Association since 1857, attending also in 1858, '59, '60, '69, '70, and 1879, and served this body both as Secretary and as Vice-President. In the eleventh volume of its transactions may be found a valuable paper by him on the subject of the results of marriages of consanguinity, and in the same volume a paper on "Stomatitis Materni." He has not only been a frequent and an esteemed contributor to medical journals, but has been counted with the editorial staff as senior editor of the New Orleans *Medical and Surgical Journal*. He was a good writer and an interesting lecturer. Oct. 16, 1840, Dr. Bemiss was united in marriage to Mary Frances, daughter of Eli Lockert, of Clarksville, Tenn. This union was blessed by six children, who, with their mother, survive to inherit the good name which the esteemed citizen and skilful physician won for himself and leaves as an imperishable legacy to them. The medical faculty of the University of Louisiana, in special meeting, passed appropriate resolutions of respect to the memory of their late associate, Prof. Bemiss, as did the Medical Association of New Orleans. The death of Dr. Bemiss is mourned by the people of New Orleans as a public misfortune.

J. M. T.

IN MEMORIAM.

Tulane University of Louisiana, Medical Department, New Orleans, November 18, 1884.

At a meeting of the Medical Faculty of the Tulane University of Louisiana the following resolution was offered by Professor S. E. Chaillé, M.D., and passed unanimously:

Resolved, That the Faculty of the Medical Department of the Tulane University of Louisiana suffered a most deplorable loss on the evening of the 17th instant by the sudden death of Professor S. M. Bemiss, M.D., a colleague beloved for his great tenderness of heart, his sensitive sympathy for the sorrowing, his prompt and cheerful services to the needy; for his hospitality, generosity and fidelity; a colleague honored for his distinguished ability and exceptional learning; for his devotion to duty so conspicuously shown during four years of war and eighteen years in the service of this University; for his many sacrifices of policy to principle; for his manly courage in assailing wrong and maintaining right, and for his charity to all, with malice for none.

When his cultured brain ceased to act and noble heart to beat his country lost one of its most valuable citizens, his patients one of America's ablest physicians, his friends a strong supporting hand in the hour of need, and his much loved wife and children a husband and father, whose great affection and self-sacrificing devotion honored them and ennobled him.

T. G. Richardson, M.D., Dean.

BOOK REVIEWS.

Lectures on Diseases of the Rectum. Delivered at Med. Dept. Univ. City of New York. By J. Williston Wright, M.D., Professor of Surgery. New York: Bermingham & Co. 1884. Pp. 170. (Price $1.25.)

These lectures were reported stenographically in the *Medical Gazette*. They are now reissued in book form, making a convenient small work of reference. They are not put forth with any claims of originality, probably, but may be said to contain a good compilation of recent opinions and modern practice in the treatment of surgical affections of the rectum and anus.

E. W. A.

Transactions of the Indiana State Medical Society. Indianapolis: 1884. Cloth, pp 382.

In his able address the President, Dr. S. E. Munford, after a review of the present relations of the profession to society and a consideration of its philanthropic position, particularly as shown in the department of sanitary affairs, proceeds to the consideration of the gross wrongs unwittingly perpetrated upon the learned and honorable in the profession by society, which, through its nebulous belief in any loud-mouthed rascal (the phraseology is our own, and is lacking in that scholarly refinement so noticeable in the address), robs the faithful and modest student both of pecuniary success and honorable distinction.

The remedy proposed by the doctor is the one so universally advocated, namely: the better education of the profession.

There is much of interest and importance in the proceedings, but the general tone of the President's address directs attention to the class of subjects that appeared to awaken exceptional interest. This is due to the fact that the profession are very poorly protected by law in Indiana, which is consequently invaded by quacks of all descriptions.

C. E. W.

BRAIN EXHAUSTION, WITH SOME PRELIMINARY CONSIDERATION ON CEREBRAL DYNAMICS. By G. LEONARD CORING, M.D., New York: D. Appleton & Company. Cloth, 234 pages.

We will attempt to briefly summarize this charmingly written book. The law of the correlation of forces makes it evident that the functional activity of the brain is dependent upon the liberation of force by the decomposition of the organic matter supplied to that organ. Hence interference with this decomposition through the direct diminution of the supply as in compression of the carotids, or indirectly, either through failure of the organs of alimentation or from deviation into other channels, as in great muscular development, or through diminished functional activity of the brain tissue such as results from mental overwork, will lead to a diminution of its power. This latter condition, to which those previously mentioned may be accessory, constitutes brain exhaustion.

It is also shown that the rational hygiene of the emotions is important to the health of the individual, and that the power of memory serves as an index of the functional condition of the brain. Worry constitutes a prominent factor in the etiology of the disease.

In the diagnosis it is necessary to differentiate from the early stages of several forms of insanity, and it would appear to us that the differentiation is not so easy as this treatise would lead one to believe.

In treating the general causes that predispose to this condition, the author considers at considerable length the peculiarities of American society and the prevailing faulty system of education.

The principles of treatment are founded upon improved hygiene, the employment of the recuperative power of sleep, and the fact that in animal food is found the best form of nutriment for the exhausted brain. These general measures may be supplemented by a judicious use of drugs.

The volume is written by one who has had abundant opportunities for informing himself as to the practical side of the subject considered, and it is sufficiently popular in its style to be of interest to most general readers.

C. E. W.

THE ELEMENTS OF PHYSIOLOGICAL PHYSICS. An Outline of the Elementary Facts, Principles and Methods of Physics; and their Application in Physiology. By G. MCGREGOR ROBERTSON, M.A., M.B., C.M. Cloth, 528 pp. 219 wood cuts. Philadelphia: Henry C. Lea's Sons & Co.

The title of this work sufficiently explains the nature of its contents. It is designed as a manual for the student of medicine, an auxiliary to his text-book in physiology, and would be particularly useful as a guide to his laboratory experiments, if he should have occasion to try any.

It will be found of great value to the practitioner, particularly the general practitioner of fair education in physics and physiology, but who has become a little rusty. For instance he may be going to purchase a microscope and to sharpen up a bit on the principles of optics, or he is to write a paper on the relation of presbyopia and procreation, and would like to remember a little something about the physics of the eye. Here in very short space he will find the very facts and principles that he has forgotten.

The book is of particular value in its explanation of the subject of electricity. The denseness of the ignorance of the majority of medical men, even of those who are constantly using the battery, as to the nature and properties of the agent employed, is perfectly astonishing to those who have an opportunity of conversing with the purchasers of such instruments.

It is not light reading by any means. It is a carefully prepared book of reference, concise and accurate, and as such we heartily recommend it.

C. E. W.

HANDBOOK OF THE DIAGNOSIS AND TREATMENT OF SKIN DISEASES. By ARTHUR VAN HARLINGEN, M.D. Philadelphia: P. Blakiston, Son & Co. 1884. Cloth, 282 pages. Two colored plates.

This book is most full in the consideration of those diseases which are particularly common or painful. It presents a large number of prescriptions, and its contents are arranged alphabetically, thus making it at once useful to the practitioner and of ready reference.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM NOVEMBER 22, 1884, TO NOVEMBER 28, 1884.

McKee, Jas. C., Major and Surgeon, leave of absence extended one month. (S. O. 273, A. G. O., Nov. 20, 1884.)

Goddard, C. E., Major and Surgeon, assigned to duty at Fort Yates, D. T. (S. O. 138, Dept. Dak., Nov. 15, 1884.)

Loring, L. Y., Captain and Assistant-Surgeon, assigned to duty as Post-Surgeon, San Diego Bks., San Diego, Cal. (S. O. 135, Dept. Cal., Nov. 19, 1884.)

Taylor, A. W., First Lieutenant and Assistant-Surgeon, relieved from duty at Fort Omaha, Neb., and ordered for duty at Fort D. A. Russell, W. T. (S. O. 101, Dept. Platte, Nov. 19, 1884.)

Wilson, Geo. F., First Lieutenant and Assistant-Surgeon, granted one month leave of absence, from Nov. 20 (Vancouver Bks., W. T). (S. O. 180, Dept. Col., Nov. 18, 1884.)

Wales, Philip G., First Lieutenant and Assistant-Surgeon, now at Ft. Cœur d'Alene, I. T., ordered for temporary duty at Vancouver Bks., W. T. (S. O. 179, Dept. Col., Nov. 17, 1884.)

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ORIGINAL ARTICLES.

THE THERAPEUTIC ACTION OF THE NATURAL MINERAL SPRINGS OF CRESSON UPON THE MUCOUS MEMBRANE OF THE NOSE AND THROAT.

BY DR. CARL SEILER,

Instructor in Laryngology and Lecturer on Diseases of the Upper Air Passages, at the University of Pennsylvania.

Read in Section of Ophthalmology, Otology and Laryngology of the American Medical Association, May, 1884.

During a short sojourn at Cresson Springs, last summer, I became acquainted with the mineral springs of the place; and having observed their therapeutic value on some persons staying there, I resolved to give the matter a thorough test. It was an easy matter to obtain a sufficient quantity of the waters for trial during the winter, and the following remarks will give a *resumé* of the results of numerous trials as well as a few hints as to the proper use of mineral waters in general.

The following analyses of the iron, alum and magnesia springs at Cresson, were made by Professor F. A. Genth, of the University of Pennsylvania, for the State Geological Survey, in 1875.

One gallon of 231 cubic inches contains:

	Iron Spring.	Alum Spring.
Sulphate of Ferric Oxide	= trace	33.38970 grains.
" Alumina	= 1.60466	21.20498 "
" Ferrous Oxide	= 23.47923	16.25273 "
" Magnesia	= 22.58007	27.69855 "
" Lime	= 48.91824	40.20179 "
" Lithia	= trace	0.04693 "
" Soda	= 1.64331	0.70398 "
" Potash	= 0.32405	0.42622 "
Chloride of Sodium	= 0.04063	0.02336 "
Bicarbonate of Iron	= 5.03471	3.74756 "
" Manganese	= ———	trace "
" Lime	= 3.52946	——— "
Phosphate of Lime	= 0.02914	trace "
Silicic Acid	= 1.20832	1.86794 "
	108.39182	145.56374

	Magnesia Spring.
Sulphate of Lime	= 0.10912 grains.
Chloride of Magnesium	= 0.55962 "
" Calcium	= 1.30444 "
" Sodium	= 1.22974 "
Bicarbonate of Iron	= 0.01753 "
" Manganese	= trace "
" Magnesia	= 0.41434 "
" Lime	= 0.02252 "
" Soda	= 1.42582 "
" Potash	= 0.20671 "
Phosphate of Lime	= 0.00408 "
Alumina	= 0.00876 "
Silicic Acid	= 0.91455 "
Nitrous Acid	= trace "
Carbonic Acid (free)	= 0.66390 "
	6.88113 "

There are at Cresson three springs: One a very strong iron spring, which, according to the analyses made by the Pennsylvania State Survey, ranks with the best so-called steel springs of Europe; a ferruginous alum and a weak magnesia spring. These waters I used on a number of patients suffering from chronic catarrhal inflammation of the upper air passages, in the form of spray applied locally to the diseased mucous membrane and the iron and magnesia waters internally with proper regulation of the diet of the patients.

Thus I found that the ferric alum water had a decided tonic and stimulating effect in those cases of atrophic nasal catarrh, which were complicated with pharyngitis sicca and chronic laryngitis, and that the beneficial effect of the local applications was very soon apparent to the patient. In these cases selected for trial no other treatment was used, so that there should be no error possible in determining the therapeutic value of the application.

The iron water I found to have no very decided effect upon these cases, but to be of great value in cases of follicular pharyngitis and in the milder forms of hypertrophic nasal catarrh, as well as in cases of ordinary simple chronic laryngitis and bronchitis. The water is sufficiently alkaline to soften the secretions and to cleanse the mucous membrane.

The magnesia water locally applied gave no results whatever, and I very soon desisted in using it for topical applications, but found it a valuable adjuvant in the treatment of patients suffering from lythæmic inflammations of the mucous membranes of the upper air passages. In these cases the patient was directed to drink the water freely, and its slightly diuretic effect soon became apparent.

The iron spring also is somewhat diuretic in its action, but it is chiefly valuable as a tonic particularly in cases with feeble digestion.

The local applications were made in all these cases in the form of sprays, either with the hand atomizer or with the steam apparatus, and were not repeated oftener than once a day.

Artificially prepared solutions of iron and ferric alum which I used in a number of cases similar to those which were treated with the natural waters, did not have the same effect, and this fact strengthened my belief that it seems impossible to manufacture an artificial mineral water in the laboratory of the chemist which is equal in its value to that produced in Nature's laboratory.

Almost all the European authors on diseases of the lungs and upper air passages lay great stress upon the

value of the natural mineral waters in the treatment of these disorders, and advise their patients to go to one or the other of the many watering places on the continent. In America, on the other hand, although we have mineral springs of equal and even greater therapeutic value than are found in Europe, yet the medical profession at large does not seem to recognize the fact, and they are little patronized with the exception of a few, where, however, the waters form the least attractions, as for instance in Saratoga.

This may perhaps find an explanation in the fact that, in this country everything being free, the patients at these watering places are left to their own choice as to the quality and quantity of the water they are to drink, and are not in the least restricted as to their diet, which as a rule is either altogether insufficient in quality, or sumptuous beyond reason. In Europe, however, the effects of the different mineral springs are well known to every educated physician, and when he sends a case to a watering place it is not a random patient which perhaps he is anxious to get rid of for a time, but he selects that mineral spring which is most suitable for the disease from which the patient is suffering. At the springs there is also a physician appointed permanently by the company or State owning the ground, who has made a study of the therapeutic action of the mineral waters, and who directs every patient as to which of the waters, if there are more than one spring at the place, he is to drink or use, how much, and in what form, whether internally, by local applications, or in the form of baths, and finally gives careful directions as to diet and exercise compatible with the use of the mineral springs.

We cannot expect that change of air and the indiscriminate use of a mineral spring alone should produce these marvelous effects which we so often hear about as having been produced by this or that German spring unless we combine hygienic measures with our therapeutic agents. As soon as the medical profession and their patients realize this important fact, our valuable mineral springs will cease to be a mere pretext for our fashionable patients to spend a few weeks at a watering place, and will become what they ought to be to-day: valuable adjuncts in the treatment of most chronic diseases.

The mineral springs of Cresson, viewed from this standpoint, will, I have no doubt, soon be recognized as extremely valuable in the treatment of all catarrhal affections of the mucous membranes, which is enhanced by their situations and surroundings. They are located near the summit of the Alleghanies at an elevation of 2,300 feet above the level of the sea, and within a few miles of the celebrated Horse Shoe curve of the Pennsylvania railroad, thus affording a moderately high altitude with a moderately dry climate, one that is eminently suited for catarrhal diseases. The hotel accommodations are excellent and the place is free from many of the objectionable features of other more fashionable watering places, such as drinking saloons, gambling hells, race courses and the like, which aside from the bad moral effect must necessarily materially interfere with the needful rest free from excitement, so necessary with treatment of most chronic diseases.

Unfortunately I was not able to test the virtue of Cresson waters in the form of baths, but when we compare the analysis with that of other springs similar in their chemical constituents we will find that also in that form they must be valuable in many of the disorders due to nervous debility which so frequently show themselves in inflammation and neuroses of the larynx and nasal cavities. As a matter of course, springs of this kind properly used will exert a beneficial effect upon catarrhal inflammations of other portions of the mucous membrane, but as my line of work lies in the direction of laryngology and rhinology, I could not well investigate the therapeutic action of these waters further than I did, namely, upon the mucous membrane of the upper air passages.

SOME REMARKS ON THE FEEDING OF SCHOOL CHILDREN.

BY LOUIS W. ATLEE, M.D., PHILADELPHIA.

Read in Section on the Diseases of Children of the American Medical Association, May, 1884.

From the beginning of all things the weak have been subservient to the strong, both mentally and physically. That the vigor of its people goes to make the greatness of a state is well illustrated in the history of the Roman people, who lost their supremacy in proportion as they destroyed their once famous physical abilities by sensuous indulgences.

It behooves us to see that this coming generation is endowed with the bodily vigor to fight successfully the never-ceasing battle of life; for upon our shoulders is thrown this responsibility.

The subject to which I wish to draw your attention is one that of late has been most thoroughly sifted in England, where a remedy for the evil has been happily suggested. Every actively engaged practitioner in a large city, must have been struck by the number of children brought to his office, whose pale thin faces, but bright eyes, are so characteristic of active minds and bodies insufficiently nourished.

The daily life of these little ones will be found to be much as follows: After a breakfast comprised at most of a very little bread with some tea or coffee, off they go to school to exercise their quickly developing brains till two o'clock, with perhaps an intermission of one half-hour. During this long period of six hours' strain on their mental and physical powers (being often required to stand up during recitation), very few take any nourishment to sustain them, and if they take any, it will be some miserable trifle, such as cake or fruit. Thus is the health of our children broken, and if attention is not soon given to their worn out appearance or complainings, they will either sink under some sickness that in health would have been safely passed over, or the foundation will be laid for an existence made miserable by many ills.

I cannot do better than repeat the words of Sir Henry Peak, in the *Lancet* for Aug. 4, 1883: "The education system is not overworking children, but they are underfed. Do not reduce the lessons, but increase the quality and quantity of the food."

That good feeding is necessary for brain nutrition does not need to be demonstrated or even argued at length.

The brain is part of the body, and it must be evident that the position in which education places the brain of undeveloped children, is that of a highly exercised organ urgently requiring food and finding none or very little. These children are growing, and all or nearly all the food they eat is appropriated to the grosser and bulkier parts of the body to the starvation of the brain.

If the brains were not stimulated by intellectual work they would be left simply undeveloped. As it is, they struggle for food with the other organs of the body, and every part of the organism is reduced to a condition favorable to disease. Other things being equal, a growing child with a hungry brain is worse off both in mind and body than a dullard.

If the organ of mind was not at work it would not be so urgent in its demand for food, and even a poorly fed child might grow in body generally; but being mentally active and underfed, it can neither be healthy in brain or muscle.

This is a matter of great moment, and ought to be carefully considered by all who have the care of the young. Brain nutrition makes a larger demand on the supplies than general nutrition, and requires that its special needs receive immediate attention.

I have now fulfilled my intention, that of directing your attention to this important question, and sincerely hope that it may be the means of leading others, much more competent than myself, to give a thorough elucidation of this subject.

RAW FOOD EXTRACTS.

B. N. TOWLE, M.D., CHARLESTOWN, MASS.

Read in the Section on Hygiene of American Medical Association, May, 1884.

Molescott's dictum is suggestive, "Without phosphorus there is no thought;" so without nutrition there is no life.

Life may be defined as an aggregation of molecules possessing the properties of respiration, circulation and nutrition. Each of these properties being necessary to all forms of life, the perfection of that life relies upon the completeness of the conditions on which these properties depend. Either of these properties being imperfect or vitiated, the perfection of the organization is impaired, and the life jeopardized.

Pure air in abundance must be supplied. A perfect circulatory system to convey the pabulum to the remotest atom of the organization, and a fluid bearing on its bosom nutritive material suited to the wants of the most delicate tissues is a uniform necessity to health and vigor. From the food the blood is fed, and from the blood the various tissues are built up, therefore the blood of a healthy animal contains all the nutritive material necessary to the production of a perfect organization. If the blood is deficient in pabulum for any tissue, the organ to which that tissue belongs becomes disordered, and the whole system suffers from mal-nutrition and wasting disease, the unavoidable consequence.

Persons suffering from tubercular consumption or chronic disease of any of the vital organs, may be fed on the most nutritious food, and it may be prepared in the most approved ways known to the culinary art, and taken in quanties sufficient to nourish them, and yet they grow thin continually with food in their stomachs, because of a want of power to digest certain elements of it, as starch, sugar, fats, or the albuminoids, and the tissues to be fed by those elements starve, and the whole system is thrown into disease.

It matters but little whether it be faulty diastatic action and the starch not perfectly changed into digestive sugar, or whether it be imperfect peptones and the albuminoids not properly digested, or insufficient action of the pancreatic and liver ferments on the fats, the patient suffers all the same from mal-nutrition.

For faulty diastatic action we have no practical remedy. Soda will relieve the acidity of the stomach, and aid in forcing along the remaining starch to be acted upon by the pancreatic juice.

Pepsin and hydrochloric acid will, in some cases, aid slightly the digestion of the albuminoids, but aids for pancreatic insufficiency in the way of artificial pancreatic ferments, every attempt is worse than a failure. All artificial digestive ferments, when absorbed as such, are poisonous.

Sulph. ether is a direct stimulant to the pancreas, and it increases its secretion and assists in the emulsification of the fats of the food, and is invaluable in the treatment of consumptives where both starch and fats are not well digested.

It may be truthfully stated that all chronic wasting disease is the result of indigestion, or attended with it; and that the great result to be accomplished first, and without which all efforts will fail, is to correct this defect.

Nervous debility and neuralgia are often the results of nerve starvation. They are now, more than ever, the dread of every intelligent physician, and the terror of all business men. The weary hours of pain, and the sleepless nights of those suffering from nervous diseases, are but the beseechings of an exhausted nerve for food.

Hungry and starved, they make their wants known by the pain they set up as their only agonizing cry, and no medication will give permanent relief until the hunger is satisfied.

Having these facts before us, in which direction does medical science point us? Surely there is but one rational plan, and that is in the direction of food suited to the digestive condition of the sufferer.

Our research then must be to find a more easily

digested and assimilated food. Observation seems to sanction the fact that vegetable food elements are more readily assimilated by persons of feeble digestion than are the animal food elements, and especially when they have undergone the digestive process in the stomach of an ox or sheep. The blood of these animals, when healthy and fat, must contain all the food elements in a state of solution most perfect and freed from all indigestible portions, and hence in a form more easily assimilated than any other known food.

I have used blood food or raw food extracts for more than four years in a large number of cases, and in no case of mal-nutrition has it failed to give relief.

I have given it to patients continuously for months with singular benefits, especially in complicated cases of dyspepsia attended with epigastric uneasiness arising from innervation, and in cases of nervous debility of long standing.

The sudden and full relief this food affords patients who have a constant faintness at the stomach, even immediately after taking food, shows how readily it is assimilated. The faintness is a form of hunger, and is the cry of the tissues for food, not quantity but quality. A food that the famishing tissues can appropriate and thrive upon. Raw food is equally adapted to lingering acute diseases. I have used it in the troublesome sequelæ of scarlatina, when there was exhaustion from abscesses in the vicinity of the carotid and submaxillary glands, and in protracted convalescence from typhoid fever with marked advantage.

The cases that I especially value it in are laryngeal consumption and nervous exhaustion, in which cases there is always more or less derangement of the digestive tract, such as pain in the stomach, constipation, eructations of gases, distress after taking food, etc.

Raw food should be taken with each meal, the patients taking such other food as they can readily digest, in quantities suited to the individual cases. It adds much to the nutrition of the patient, overcomes the constipation, subdues the nervousness by increasing the strength, and is just the amount added which is required to secure success.

Intelligent prescribing of drugs implies, first, a knowledge of the power of the drug over certain forms of diseased action; second, a clear understanding of the nature of the disease to be treated, then the dose pushed until the work is accomplished. The same is true of nutrition. Nearly enough will not satisfy. The full meal only satiates. Raw food added to the ordinary meal of invalids very often accomplishes the full meal, and is the satisfying portion.

The therapeutic test of any remedy is its clinical results, and not pathological theories, and therefore I will add a few cases in which I have used it successfully.

CASE I. Mrs. A., aged 28 years. This patient had been failing for six months. When I first saw her she had a sore throat, cough, free expectoration of a glairy mucus, pain and tenderness through right lung just below the clavicle, debility, emaciation, fever, and night-sweats; pulse, 100; temperature, 99½; appetite poor and food distressed her; had hæmoptysis twice. An examination of the chest revealed a dullness below the righ clavicle with diminished respiratory murmur, with moist crepitations over top of both lungs.

Treatment.—Hypophosphite of soda and inhalations of oil perii sylvestris for two months, with but little or no improvement.

Raw food was added, and in six weeks she gained twelve pounds, and was able to resume her home duties.

CASE II. Miss B., aged 22 years. First saw her in 1880. Symptoms—a coarse harsh cough; free expectoration of cell mucus; pain in left side through to shoulder; throat dry; loss of appetite; diarrhœa and constipation alternating; fever at night; pulse, 110; temperature, 100; considerable emaciation and great weakness, constantly taking colds and having fresh attacks of pleurisy.

She had been treated by her family physician seven weeks with no improvement.

Blisters to the side and raw food were advised, and in five weeks she was able to resume her work in a shop.

CASE III. Mrs. H., aged 55 years. This patient had nervous exhaustion from over-work and the loss of a daughter. She was very much reduced, not able to walk on the street. Great nervousness, sleepless nights, head confused, and troubled days, often affirming that she should be insane. No appetite, food distressed her, constipated and great mental depression, often wishing to die. The whole list of nerve tonics and sedatives were tried and failed. I put her on raw food, and she at once began to mend and in six months was well.

CASE IV. Miss M., age 22. For the last five years this patient has been a constant sufferer from cancrum oris. For weeks at a time her cheeks and tongue have been one mass of ulcers. Whole days the saliva would flow continuously from her mouth. Appetite very poor, with a burning pain in mouth and stomach after taking food, and an intolerable faintness when the stomach was empty. For four years she had been suffering in this way until not able to wait upon herself. One year ago I advised raw food, and she has continued it until the present time. She now has very little trouble from the canker and is quite well and strong, able to share the care of her household.

CASE V. Mr. F., aged 30 years. Bright's disease of three years' standing. Symptoms: Uræmic vomiting; frequent epistaxis; sallow, milky complexion; great thirst; good appetite, but food often came up as soon as swallowed. I saw him, and advised mineral water and raw food, which he was able to retain, and improved on it for a time, but finally died. This case showing that raw food could be retained on the stomach when other food was rejected.

CASE VI. Mrs. A., aged 30 years. Had been treated in a distant city ten years for dysmenorrhœa with contracted os uteri, attended with hysteritis, but no improvement. Her menses had not returned but three times for the year.

Raw food was prescribed, and in forty days her menses returned and continued regular afterward, and in three months she was able to take a position as bookkeeper in a large establishment, where she still remains.

PALLIATIVE MEASURES IN RUPTURED EXTRA-UTERINE PREGNANCY.

BY W. W. JAGGARD, M.D.,
ADJUNCT PROFESSOR OF OBSTETRICS, CHICAGO MEDICAL COLLEGE.

Read before the Chicago Medical Society, Dec. 1, 1884.

An editorial bearing this title and appearing in the New York *Medical Record*, of Oct. 25, 1884, contains the following statement:

"There is no palliative measure for a ruptured extra-uterine cyst; there is no expectant treatment; and there is no other way known to medicine by which a woman in this condition can be reasonably expected to survive, save by the prompt use of the knife, and there is no reason for thinking that she would die if this be resorted to in time."

The object of this paper is to offer a protest against this *ex cathedrâ* mode of settling a question, in regard to which there is room for considerable latitude of opinion. Dogmatism, offensive and unphilosophical under all circumstances, attains its acme of arrogance when applied to rules of practice in medicine and surgery. Certainly, the use of the universal proposition, in the assertion just quoted, is both in bad taste and positively erroneous. In the ensuing discussion, attention is limited to the consideration of tubal pregnancy, because of its most frequent occurrence, and usually early termination. Furthermore, criticism of the treatment of the case, detailed in the *Record's* editorial, is incidental.

Tubal pregnancies may terminate: (1) in the death of the embryo and gradual resorption of the ovum, before rupture of the sac; (2) the sac may rupture, but the egg may remain within, and act as a tampon; (3) the cyst may rupture into the *ligamentum latum*, with the formation of a hæmatoma; (4) the sac may rupture into the peritoneal cavity, with the formation of a retro-uterine hæmatocele; (5) the sac may rupture into the peritoneal cavity, and the life of the woman may be threatened by free hæmorrhage, or the resulting peritonitis; (6) the ectopic pregnancy may persist until the expiration of the full period of utero-gestation. It is impossible, in the present state of medical knowledge, to make any positive statement as to the relative frequency of these terminations. Until within a comparatively recent period of time, only those cases were designated tubal pregnancies, in which the diagnosis was made by an autopsy. It is highly probable that ectopic gestation is of more frequent occurrence than the older systematic writers would lead one to believe. It is also probable that termination by recovery is not an uncommon event. These assertions receive some support from the experience of Professor Karl Schroeder:

[1] "I myself see so frequently cases of tubal pregnancy, in which the diagnosis is positive, pursuing a favorable course, that I consider recovery as the regular termination."

The second, third, fourth and fifth modes of termination are alone pertinent to the present discussion.

(2.) *The sac may rupture, but the egg may remain within, and act as a tampon.* Such cases, with favorable results to the mothers, have been observed by *Wiedersperg* [2] and *Virchow*.

Operative interference in such cases is so obviously contraindicated, that it is unnecessary to enter upon any comment upon that subject.

(3.) *The cyst may rupture into the ligamentum latum, with the formation of a hæmatoma.*

This termination of tubal pregnancy has been observed, up to the present time, with comparative infrequency.[3] There can be no doubt, however, as to its actual occurrence. The sac ruptures into the broad ligament, the embryo escapes, and an extraperitoneal hæmatoma arises. The embryo may go on to full development in this region; usually it dies and undergoes reductive metamorphosis, while hæmorrhage is checked by the pressure of the folds of the broad ligament.

Schuchardt[4] has demonstrated the possibility of this mode of termination by his celebrated case, published in Virchow's Archives. J. Veit[5] has observed the same occurrence.

Primary laparotomy is not indicated by this termination, for the reason that the natural history of the condition shows that hæmorrhage is usually controlled by the relations of the parts, and ultimately complete resorption of coagula and embryo occurs. Exceptional cases, however, may indicate operative procedure for the arrest of hæmorrhage or removal of the embryo.

(4.) *The sac may rupture and the fœtus escape into the peritoneal cavity, with the formation of a retro-uterine hæmatocele.*

Ollivier, Leclerc, Schroeder, Vignès, Gallard, Karl Braun, Veit, Chiari, and others, have observed this mode of termination. There can be no doubt as to its occurrence.

As to the frequency of its occurrence, opinions and statistics widely differ. Gallard[6] makes the statement that hæmatoceles, arising independently of trauma, are almost always due to the rupture of the cyst of extra-uterine pregnancy. Schroeder[7] says: "This etiology of the hæmorrhage (retro-uterine hæmatocele) is decidedly of very frequent occurrence, even if the tubal pregnancy is seldom diagnosticated."

Veit[8] has very recently collected 146 cases of hæmatocele, of which 40, or 28 per cent., are referred to this mode of origin. He is convinced that 28 per cent. is a low estimate of the frequency of occurrence

[1] Karl Schroeder's Lehrbuch d. Geburtshülfe, Bonn, 1884, p. 422.
[2] Otto Spiegelberg's Lehrbuch d. Geburtshülfe, Lahr, 1882, p. 290.
[3] Karl Braun's Lehrbuch der Gesammten Gynækologie, Wien, 1883, p. 634.
[4] Virchow's Arch., Bd. 89, p. 133.
[5] Die Eileiterschwangerschaft—von Dr. J. Veit, Stuttgart, 1884.
[6] Lecons cliniques des maladies des femmes. Paris, 1875. p. 635 ff.
[7] Handbuch der Krankheiten der Weiblichen Geschlechts-Organe, von Dr. Karl Schroeder, Leipzig, 1881, p. 452.
[8] Die Eileiterschwangerschaft von Dr. J. Veit. Stuttgart, 1884, p. 14.

of this etiological factor. It is highly probable, if not positively determined, that the rupture of the cyst of ectopic pregnancy is a more frequent cause of retro-uterine hæmatocele than the standard American and English text-books are disposed to admit.

The course and results of retro-uterine hæmatocele, caused by the rupture of the cyst of extra-uterine pregnancy, have been the subjects of recent study. The extravasated blood is collected in the recto-uterine peritoneal pouch, encysted, and, together with the product of conception, may be resorbed after a very variable interval. Hæmorrhage in these cases is arrested by the diminution in the force and frequency of the heart's action, the process of thrombosis, and the equalization of blood pressure within the arteries and the extravasation. (Schroeder.) Death[1] from anæmia, in the 40 cases collected by Veit, occurred but three times. No one who is at all familiar with the literature of the subject, more particularly with Leopold's experiments upon the lower animals, can entertain any doubt as to the possibility of complete resorption of the embryo. Schroeder has seen, in an autopsy on a woman, dying from a ruptured tubal pregnancy, all the peritoneal lymphatic vessels filled with red blood. Fatal peritonitis, acute or chronic, like fatal hæmorrhage, is a relatively rare termination. Schroeder, Veit and Voisin have expressed themselves very positively in favor of the view that, after rupture of the cyst of tubal pregnancy, with escape of the product of conception and the formation of a retro-uterine hæmatocele, recovery is the rule, and death the exception.

The prognosis is the same as in cases of hæmatocele from other causes. Hæmorrhage is seldom the cause of death. Peritonitis is a prognostic element of more serious import. Of the 40 cases collected by Veit, 11 died of peritonitis, at intervals of from a few days to several months.

Remarkable unanimity of opinion, as regards the treatment of retro-uterine hæmatocele, from whatever cause, exists at the present time. Schroeder, Veit, Karl Braun, Spiegelberg, Barnes, Emmet and Thomas advise the expectant plan of treatment. Absolute rest in bed in the horizontal position, or with the hips elevated, and the thighs slightly flexed upon the abdomen, the local application of cold,—ice-bags to the abdomen, bits of ice in the vagina, cold water rectal irrigation, catheterization of the bladder, in case of retention of urine, the exhibition of opium and chloral hydrate, are points of treatment, to which it is scarcely necessary to call attention in this connection.

Surgical interference, at an early stage, is seldom, if ever, indicated for reasons detailed in the foregoing brief sketch of the natural course and results of the condition.

Surgical interference, at a later stage, is considered justifiable under two indications: (1) persistence of the tumor in its original volume through weeks, without any diminution or alteration, with the occurrence of pains, which confine the patient to her bed for a considerable period of time; (2) the occurrence of suppuration or ichorous ulceration within the tumor. (Bandl, Billroth's Handbook.)

Even under these indications, laparotomy is not regarded as the operation of election. Dr. A. Martin astonished the members of the *Naturforscherversammlung*, in Salzburg, by the communication, that he had performed laparotomy three times, on account of abdominal, blood tumors. The three patients died. Baumgärtner, since the reading of Dr. Martin's paper, has performed laparotomy, on account of a peri-uterine blood tumor, once. The patient made an excellent recovery. With these statistics, laparotomy has roused no degree of enthusiasm. Operators of the present day limit their interference to the various modifications of the methods, originally suggested and practiced by Nélaton, that is, vaginal puncture, or incision.

(5.) *The sac may rupture into the peritoneal cavity, and the life of the woman may be threatened by free hæmorrhage, or the resulting peritonitis.*

Free hæmorrhage into the peritoneal cavity and consecutive peritonitis have been regarded, for so long a period of time, as the exclusive mode of termination of tubal pregnancy, that no evidence is required to establish the fact of occurrence. Again, opinions and statistics differ widely as to the relative frequency of this mode of termination. The tendency of modern investigation is in favor of the view that free hæmorrhage into the peritoneal cavity and resulting peritonitis are unusual occurrences. [1] Fatal hæmorrhage is very seldom observed, according to the observation of J. Veit, when rational expectant treatment has been practiced. Cases terminating by recovery either do not come under observation, or doubt as to the accuracy of the diagnosis is entertained. On the other hand, cases terminating by death from hæmorrhage or peritonitis are almost always subjected to post-mortem examinations. Very naturally, in the course of time, the fallacious induction—that death from hæmorrhage or peritonitis is the rule—has been made.

It is highly probable that many of the cases, recently reported in American and foreign journals, of favorable termination of tubal pregnancy before rupture of the cyst, as the result of the passage of the electric current, have resulted favorably, not from the death and resorption of the embryo within the sac, but from rupture of the cyst, death and escape of the embryo in the modes just indicated. The effect of an electric current upon smooth muscular fibre is to produce a contraction. When the number of séances, the currents employed, and the symptoms following, are taken into consideration, it is difficult to escape the conviction that in some cases, at least, the favorable result ought to be ascribed to rupture of the cyst. The question of treatment, when the patient's life is threatened by free hæmorrhage into the peritoneal cavity, or by peritonitis, is difficult and important.

Wiltshire, Lawson Tait, Knowlsley Thornton, and *our editorial friend* of the New York *Medical Record*,

[1] Die Eileiterschwangerschaft, von Dr. J. Veit, Stuttgart, 1884, p. 15.

[1] Die Eileiterschwangerschaft, von Dr. J. Veit, Stuttgart, 1884, p. 65.

see in this condition an absolute indication for *immediate laparotomy*. There are others—and they may be justly designated "surgical leaders of the day,"—who do not recognize this absolute indication for immediate operative procedure.

The prognosis of laparotomy, after rupture of the cyst, is by no means as favorable as in tubal pregnancy before rupture.

The reasons for gloomy prognosis are evident.

The operation must be performed upon a woman in a condition of more or less profound shock. The state of acute anæmia exercises an unfavorable influence. Ether is dangerous, from the possibility of dislodgment of a thrombus and renewal of hæmorrhage. Chloroform must be used with extreme caution, on account of the enfeebled heart. The blood poured out into the peritoneal cavity is mechanically removed, instead of undergoing resorption. The *technical* difficulties of the operation are great. The anatomical relations of the parts are very different from those in cases of consecutive or secondary hæmorrhage, after extirpation of tumors by abdominal section. It is difficult, even on post-mortem examination, to differentiate between tissues and organs. *In viva*, the complications are still more intricate, as all who have had experience will testify. The choice of time, of place, and of operator, is out of the question. Abdominal section must be made without qualified assistants, and without attention to the principles of antiseptic surgery. If the patient is removed to a hospital, she may die on the way. If she survives transport, the assumption of spontaneous recovery is justifiable.

"Is, therefore," says Veit, "the prognosis of the operative procedure gloomy *per se*, the prognosis of the tubal pregnancy remains the same; indeed, it grows better with every hour the patient lives after rupture, so that of laparotomy and arrest of hæmorrhage there really can be no serious talk." Finally, Veit, after a careful study of the literature of the subject, has been unable to find *one recorded case*, in which the patient's[1] life was saved by the operation.

Under the expectant plan of treatment, is included a variety of expedients. Absolute rest in bed, in the horizontal position, the free exhibition of opium, compression of the abdominal aorta by sand-bags, shot-bags, ice-bags, tourniquet, or the band, rectal irrigation with ice-water, are the more important methods by which hæmorrhage may be controlled and the process of thrombosis favored. It is not necessary to add that all cardiac stimulants and counter-irritants must be proscribed.

If, notwithstanding this therapy, symptoms of internal hæmorrhage persist, abdominal section may be resorted to as the only procedure, that offers hope.

It may not be amiss to note the "surgical leaders of the day," who defend the line of treatment thus briefly sketched:

Karl Braun, Karl Schroeder, J. Veit, August Martin, Sir Spencer Wells, T. Gaillard Thomas, and Thomas Addis Emmet, all advise the expectant plan of treatment, until it has proved futile.

2330 Indiana Avenue, Dec. 1, 1884.

[1] Veit. Die Eileiterschangerschaft, p. 64.

SPECIALTIES, AND THEIR RELATION TO THE MEDICAL PROFESSION.

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The title chosen for this paper is purposely a little ambiguous and possibly a trifle ungrammatical; but it was desired to express by means of the title certain aspects of the subject of specialism in medicine which are worthy of consideration, and which are better indicated by this title than by one worded differently. The topic is not "*specialists* and their relation to the members of the medical profession," but the broader one of specialism, or the concentration of thought and work in one direction, however it is accomplished. Nor is the topic "specialties and their relation to the *science of medicine*," but is broader even than this, and looks toward the relations which those who are practicing and advancing medicine should bear toward the development of its science and art, by developing the separate or special portions of that science and art.

The thoughts to be presented in regard to specialties in medicine may be grouped under several quite distinct heads:

1. Specialties—what they are.
2. Why they exist.
3. The relations they bear to the progress of medicine.
4. The relations they bear to general medical practice.
5. Specialists, or those limiting their practice to a single branch of medicine, or class of diseases.
6. The education necessary for the proper practice of a specialty.
7. The future of medical specialism.

First, as to what medical specialties really are. A specialty is defined by Webster to be "that which is the special or particular mark of any person or business: that for which a person is distinguished, or which he makes an object of special attention." A specialty in medicine is some particular branch of the science or art, or even some individual disease, to which especial attention has been given, or with which, from any circumstance, a medical man is exceptionally well acquainted. In the broadest sense, every one practicing medicine is more or less of a specialist, for it is impossible to have knowledge and experience so evenly acquired that they should not be relatively greater in one or more directions. This is certainly so in every other branch of science. Now, the step from having special knowledge and experience in any one direction to making advances in this line, is not, or should not be, very great, and with this increased interest in and study of a branch, the further step into concentrating more and more of energy and thought upon the special subject which has become of interest, is most natural and fitting. Thus it is that specialties have grown in medicine in

earlier times; thus it is that out of the general mass of those engaged in the study and practice of medicine, one and another has in times past emphasized and developed one portion and another of the vast field in which all have labored. Thus, from the conglomerate mass of diseases, individual ones have been carefully differentiated, groups and classes have been established, and the field of general medicine and surgery has been greatly cleared, and much light has shone through what was almost impenetrable darkness two hundred years ago.

This development of the science and art of medicine gives in part the answer to our second question:

2. Why do medical specialties exist? The answer to this is comparatively simple: First, It is because the entire field of medical knowledge has become so vast, and the advances in it so great, that it is an absolute impossibility for any one mind to perfectly grasp the former, or to follow and comprehend the latter; and unconsciously the choice is made by every one, whereby certain things are specially considered and certain others are slighted. It is with difficulty now that even a specialist can keep thoroughly posted in all that is accomplished in his own line of practice, and it is utterly out of the question, even if it were desirable, for him to read all that is written in his branch alone. Second, Medical specialties but follow the lead of other branches of science, which are all divided and subdivided so that no scientist pretends to grasp the whole perfectly. In the other professions the same has taken place; in the law the lines of knowledge and practice are distinct between civil and criminal law, real estate, patent-office, international, and other departments of the legal profession; in mechanics, naval, mining, mechanical, and civil engineering are all quite separate departments of work; and so on of many other professions and occupations. Third, Medical specialties exist because there is a public demand for them, and the supply follows accordingly. The public wish, and are willing to pay for, the highest attainable knowledge and skill in regard to each and everything relating to the practice of medicine, and successful dealing with diseases which have previously proved obstinate or distressing under treatment, will inevitably lead to increased confidence in the individual who gives relief, and invariably tend to enlarged opportunities in the same direction. Thus, were the entire profession at any one time to be placed on a perfect equality of knowledge in a community, a greater or less degree of special practice would unconsciously develop, and certain members would, before long, stand more prominent than others in particular lines of work.

This leads us naturally to the consideration of our third topic:

3. The relation which medical specialties bear to the progress of medicine. As we have seen, specialties are the natural and necessary outgrowth from the progress of medicine. They have not arisen from any premeditation or desire to split up the subject of medicine into many disjointed parts, but they are only the long, far-reaching roots which the parent tree of medicine has sent out to draw sustenance from the deep and hidden springs of wisdom and knowledge, in order to minister to the growth and development of the trunk and branches, which in turn bear the leaves and fruit of healing. To oppose specialties is to sap the life of the entire science and art of medicine. Who can deny the gain which has resulted from the first great specialty, namely, surgery, or who can compute the lives and suffering which have been saved by those who have devoted special attention to this branch, even to the exclusion of ordinary medical practice? Subdividing this branch again, who can estimate the value of the lives which have been spared through the exertions of those who have given great attention to a single operation, ovariotomy? Who can be blind to the progress in the science and art of medicine made through the labors of those who have confined their energies to gynæcology, ophthalmology, laryngology, dermatology, neurology, and other special lines of work, and who can claim that the same advances could have been made by those whose thought and practice extended over the entire, rapidly enlarging circle of medical knowledge?

It is undoubtedly true that many valuable additions to special lines of practice have been made by those engaged in general medicine, of which ovariotomy, perhaps, is the most striking example; but, on the other hand, the mass of knowledge in general regarding particular diseases has been contributed mainly by those whose opportunities gave unusual acquaintance with them.

It must never be forgotten that the existence of specialties renders it possible to give to the medical profession a large amount of enlightenment and experience in particular directions which could not otherwise be obtained. Thus, the gathering together of patients afflicted with diseases of a particular class, and the experience gained therefrom, enables the teacher to tell in a moment that which another might take a lifetime to acquire, and by the exhibition of cases, to demonstrate features of disease and methods and procedures of practice which another could learn only with the greatest difficulty, if at all, from personal experience.

We come now to consider our fourth topic:

4. The relations which medical specialties bear to general medical practice. From what has preceded it is evident that as specialism is the outgrowth of general medicine, the connection between the two is very intimate; they can no more live apart than can the tree and its root live and thrive when torn asunder; the life of the one is the life of the other.

It was remarked that every practitioner of medicine was, to a greater or less extent, a specialist, and the converse is still more certainly true, namely, that every really good specialist must be acquainted with general medicine and be able to practice the same with success; he cannot rationally and properly treat any special disease without understanding and appreciating the relations which that disease may bear to the system at large. Other things being equal, the best specialist is undoubtedly he who has the best knowledge of and experience in general medicine, and who applies the same in connection with the line of practice in which he is specially engaged.

The greatest errors and harm can come from the too exclusive concentration of thought upon a single branch of medicine without a proper appreciation of the relations which may and generally do exist between the organ of disease under treatment and other organs of the body, or the general system.

This leads us again, very naturally, to the consideration of our next subject:

5. Specialists, or those limiting their practice to a single branch of medicine or class of diseases. A specialist is defined by Ogilvie to be "a person who devotes himself to a particular branch of a profession, art, or science; a person who has studied and acquired a special knowledge of some particular subject." If the foregoing argument and reasoning are correct, a true specialist in medicine may be defined to be a "physician or surgeon who is thoroughly acquainted with general medicine, theoretically and practically, but who has devoted particular attention to, and acquired peculiar knowledge and skill in some special branch or department of medicine, or class of diseases." The proverb *poeta nascitur, non fit*—the poet is born, not made, applies equally to the specialist as to the poet: he should be born out of the womb of mother medicine, should feed on the rich milk which nourishes all her children, and should grow out of the necessities of the case, being nursed in the lap of experience, and in full process of time may develop into something useful; but to jump into the practice of a specialty, like Minerva from the head of Jupiter, fully armored and ready for the fight, can seldom be accomplished with the highest success. And yet many attempt this yearly; the idea seems very prevalent that a young man has but to secure a diploma, spend a little time in the study of one special subject in one of the larger cities here or abroad, announce himself as a specialist, write an article or two, and, *presto*, change, he is a veritable specialist, only waiting for patients.

This tendency to hasty and imperfect preparation in the matter of general medical study and general clinical experience has resulted in much harm to specialism, and much injury to the science and art of medicine, as well as to its reputation before the world. Want of proper knowledge and training leads to imperfect medical observation, undue or insufficient appreciation of concomitant or allied symptoms or features of disease, and too often to unsuccessful treatment, from a failure to judge wisely in many matters relating to the individual under treatment. While accurate diagnosis and correct pathology are most essential and vital elements in medical practice, the broad knowledge and experience belonging to the general practice of medicine best fits one to understand and treat individual cases of disease, and the specialist will have but little relative success who ignores systemic influences, and pays exclusive attention to local phenomena and local measures.

The practice of a specialty is, therefore, beset with no little difficulty, for the tendency is very strong to concentrate thought and attention too exclusively on one idea, and to see and think of only one organ of the body or class of diseases, and thus to lapse into what Lord Lytton calls "the wretched narrow-mindedness of every one who cultivates his specialty alone." Let no one, therefore, envy the specialist, for in addition to the immense drudgery and monotony of seeing and dealing with the same diseases over and over again, and the untold labor of treating the thousands of free patients in public institutions, which give him his knowledge and skill, he has a constant struggle, if he be a true specialist, to rise above his speciality, and to maintain his proper relations to the science of medicine. Few but those who have undergone it can appreciate the labor involved in connection with these matters, to say nothing of literary work and teaching; so that no one should seriously contemplate special practice who is unprepared for long and arduous toil. It is, I think, a fact, that the health of specialists breaks down more commonly than that of those engaged in the round of general practice; certain it is that the daily weariness and exhaustion of one who has spent a day in varied occupation, out in the world, from place to place, with changing scenes every moment, cannot excel that of the busy specialist who, going round and round the treadmill, day by day, over the same ground again and again, never seems to advance much beyond the point at which he started.

It is useless for our subject to enter this matter more fully, but many specialists will be willing to agree that in many things they envy the general practitioners—in the largeness and variety presented by their field of operation, in the many warm and true friendships formed, and in their varied and healthful occupation, which a possible larger pecuniary success in a few instances in a specialty by no means counterbalances.

We come now to consider:

6. The education necessary for the proper practice of a specialty. As may be judged from what has preceded, a specialist's education should be most thorough and complete. In the first place, the academic and collegiate education is most necessary, both for the training of the mind to close study and observation, and for the knowledge of the languages, ancient and modern, which are continually required in the study and prosecution of any special branch.

In beginning the study of medicine proper, the idea of a specialty should be kept entirely out of mind, and the most thorough course of general medical study possible should be followed, with especial attention to chemistry, histology and pathology. The practical portions of study should also be closely followed, and later in the course as much as possible should be learned from clinics. If the medical man is subsequently to give his attention to one branch more exclusively, it is all the more reason that he should have the foundation and groundwork thoroughly and perfectly learned, for it is a constant lament of specialists that there is so much outside of their specialty which they would like to know, but which their subsequent press of work prevents their acquiring. It may be stated most positively that no portion of a thorough medical education is wasted in preparing one for the practice of a special branch, not even obstetrics for a laryngologist, or ophthalmology for a gynæcologist; sooner or later every particle

of medical knowledge which can be acquired will be brought into requisition. Three years is all too short for laying a groundwork which may be called upon for use many years later, to solve some doubtful question in pathology or therapeutics.

On graduation, it is exceedingly important to have a period of service in some general hospital as interne, for two years if possible; this is preferably to be in a medical service, rather than in a surgical. If one is to deal with only one class of diseases in his future practice, it is all the more necessary that he should have practical and personal acquaintance with general diseases beforehand, and this hospital service, if well employed in note-taking, will be to him afterward a mine of wealth of experience from which he may draw with the greatest comfort and benefit. All who have served as internes in a hospital will appreciate this, and will recall how little they found that they knew practically on leaving the medical college and entering the hospital. It makes one shudder to think of those who have plunged into a specialty without having thus had their studies crystallize into practical shape under the fostering care of the experience acquired in hospital life. This service in a general hospital is of far more value, practically, than a residence in a special hospital devoted to the branch which is to be followed.

On leaving the general hospital a service in a special hospital is most desirable, and forms the best basis for acquiring the specialty. It is painful to an educated man visiting the centres of medical education abroad, to see how little the younger students there from other countries know of what is well known at home, and much reproach is thereby brought on our own land and institutions.

The student of a specialty should learn all that is possible here before going abroad; otherwise his judgment is warped, and correct impressions and clear knowledge cannot be obtained. Many who have been special teachers here will verify the statement that those who return from studies abroad continually express surprise, on their return, that so much is known here, and the remark is often made that if they had appreciated the fact they would not have gone abroad for study. If two or three years are to be taken for the study of a specialty, a certain, if not considerable, portion of it can be far better spent here first, and then one is able to determine the true value of what may be seen and learned abroad. Space forbids entering further on this topic, on which much might be said, as it is a most important matter, bearing strongly on our subject.

When the future specialist has completed this portion of his preparation, what course should he pursue in regard to active practice? For many reasons it is important that he should attend first to general medical practice. This should be the backbone of his life, both for the purpose of remuneration until he can secure adequate special practice, and more especially in order to accustom himself to meet and treat patients, recognizing readily their various complaints and adapting himself to their different constitutions. He will soon enough get narrowed down to the little rut or track around which he must travel day after day, and this early experience in general practice will be looked back upon with pleasure and profit as he plods in his beaten circle in after years.

For some reasons it is desirable for a young specialist to secure a class of patients in a dispensary other than those presenting the complaints he is to treat. Indeed, the best is a general class of digestive disorders, including rheumatism and the various unclassified diseases which are often grouped together. This will enable him to get a wider and a firmer grasp on general medicine. Also, if it were possible, later, to secure an appointment as attending physician to a hospital, it is wise and beneficial to take one devoted to general diseases, and it would be well if all specialists could have such appointments in general hospitals, as they would best serve them in keeping up their practical acquaintance with general medicine.

In regard to the matter of a specialist practicing general medicine later, in connection with his specialty, or confining his practice to the latter exclusively, a few words may be said. Although theoretically, as has been shown, this is highly advantageous and proper, there are certain practical objections to it which render the latter course, now generally pursued, necessary if not desirable. First, in the large cities there is quite sufficient work for a specialist to do without going outside of his special line. Those who really get into a good practice have often all that they can do, and many are quite exhausted with this work alone. Second, the hours which the consultant is required to be in his office are such that he cannot well attend to outside parties, however much he may desire. In the cities it is necessary to have early hours for the business gentlemen, and morning and noon hours for ladies, so that with critical cases it would not be right or proper to delay the visit until after office hours, which are often prolonged, say even until two o'clock or later. Third, there is always the danger of a specialist, by his success in a single disease, making such an impression that the patient wishes his care on all occasions, and thus he may readily alienate from their regular attendants individuals who have perhaps, been referred to him in his special branch. This is an experience which every specialist has had more than once, and one is urged continually to do this by enthusiastic patients. The only safe way, so as never to give offense to physicians or patients, is to avoid the acceptance of such patients for other diseases on any account whatever, and this is made the easier if, after one has become established in special practice, he abandons all but such cases as legitimately come within his special province.

Thus, we see, the specialist should properly grow out of the general practitioner, either following throughout some previously determined course, or shaping his practice as circumstances and experience seem to direct.

We come now to our final topic, namely:

7. The future of medical specialism. Many medical men view the comparatively recent growth of specialties with more or less alarm, and fear lest, with specialists for every organ of the body and class of disease, there will soon be nothing for the

general practitioner to do, and on this ground some have opposed specialists and have failed to seek their aid, even in proper cases. This fear is quite natural, for, verily, if every case should be turned over to the various "ologists" who might possibly claim it, the family physician would indeed become but a distributer of patients without aiding his own pocket or reputation.

But, like every other principle in political economy, this one will solve itself on the basis of supply and demand. If the public want better treatment in difficult cases than they have had, and if they are willing to pay for it, it will surely be forthcoming somewhere or in some way—so that the tendency to specialism in medicine cannot be arrested, even if it were so desired. In the law the patent office lawyer gets the difficult and doubtful cases, and the celebrated criminal lawyer is retained where his services are most needed.

But there is a solution of the difficulty which is rapidly working itself out, and which daily becomes more and more apparent. By the multiplication of colleges, post-graduate courses and clinics, and by the great increase of periodical literature and of books, these very specialists are doing all in their power to enlighten the medical profession, present and future, not only as to what has been already learned, but what they are daily learning from their extended experience. They are daily, at great pains, giving to the medical profession the most careful and particular instruction, not only as to the grosser matters in their several branches, but also the more minute and special points in diagnosis and practice; they are, in fact, giving away their most precious truths, points of practice, secrets even, they are publishing widecast all that they use in their successful practice. An outsider would exclaim, that seems incredible, and yet it is a fact, and who can deny it?

Now, what is the solution of the question? Simply this, the coming medical man will be educated not only in all that his predecessors knew, but he will acquire such an additional knowledge of the various special diseases to which the body is subject, that he will be able to treat successfully a large share of the ordinary cases. No specialist now claims that all cases coming under his branch should come to him, but he seeks continually to enlighten others so that they can manage them, and he rather delights in the more difficult and obscure cases. And such must always exist, and the student of the special branch will come in to aid where the skill of the general practitioner naturally fails.

Who then is to blame at the present time if the specialist succeeds in curing cases where others have failed to give relief? Who is to blame if other similar cases come to him on the recommendation of those who are cured? Shall he refuse to give relief when asked?

The thoroughly educated and properly qualified specialist, then, has and will ever have his functions to perform in the great field of the science and practice of medicine, and his powers for good will increase, and his field of usefulness enlarge, with the advancing world of science, and the broadening and deepening of the stream of knowledge. What a necessity, therefore, that the formation of this class of practitioners should be most zealously guarded in the future; what need is there that their general education by collegiate instruction should be strongly and well accomplished, and that their general medical education and practical knowledge of the entire science and art of medicine should be most completely and carefully planned and carried out to the letter.

It is recognized and acknowledged with regret that there are those who have entered special practice without the full and proper training here described, and that the tendency of imperfect specialism is to narrowness of mind and even to charlatanry. But is the evil much greater here than that which yearly takes place in the indecent thrusting forth by the many medical colleges of the hosts of imperfectly prepared doctors of all sorts upon the community? Surely the American Academy of Medicine has a great and noble work to do in boldly attempting to stem this tide of evil.

There are certain questions of etiquette in connection with the matter of the relations of specialties to the medical profession which it might be well to consider, did time permit; but this paper has already exceeded the limits intended, and their consideration must be deferred.

In conclusion, the matters here presented may be briefly summed up as follows:

1. The science and practice of medicine has, in company with other sciences, become so vast that no one mind is capable of fully grasping every portion of it.

2. Unconsciously its various departments have become divided up, and from natural causes certain men have become prominent in various departments.

3. These so-called specialties in medicine are so great and extensive each, that particular or exclusive attention is now devoted to them, the study and practice in each branch being sufficient to fully occupy one's time.

4. The development of these branches has greatly increased the scope and extent of medical knowledge.

5. Every medical practitioner should be more or less of a specialist, excelling in some particular direction.

6. To properly follow and develop one of these specialties, the medical man should be particularly well educated, theoretically and practically, in general medicine as well as in his special branch.

7. This tendency to specialism in medicine cannot be arrested; but the difficulty tends to solve itself, by the education of practitioners and students in these specialties, so that the majority of simpler cases shall be treated by them, while the more difficult and obscure cases will naturally fall to the specialist who refuses to treat other diseases and confines himself to the practice of a single branch.

ADDITIONAL POINTS IN THE USE OF COCAINE MURIATE.

BY W. W. SEELY, M.D., CINCINNATI, O.

The extreme scarcity of the new anæsthetic, *cocaine muriate*, has rendered it clinically impossible for any of our observers to test its advantages and disadvantages in all directions, and hence contributions from different sources are needed to complete its history.

I have had a supply from three different sources—Foucar, of New York; Parke, Davis & Co., and Wilfert, of Cincinnati.

That the drug thoroughly and completely anæsthetizes the conjunctiva and cornea, needs no further mention. In fact, I think it might be affirmed that it will anæsthetize any part it comes in contact with that will rapidly absorb it—a mucous membrane in any locality, and the broken skin, and such parts as it can be brought into contact with by the hypodermic needle, as witness the case reported by Carmalt, of New Haven, in the last number of the JOURNAL.

The smarting and burning of small abrasions and cuts are set aside by the cocaine in about a minute, as I have had occasion to both witness and experience. In regard to the new points I have to offer, I will state:

1st. That the effects of the drug seem to be more rapid and persistent, and are produced by a smaller amount, in the normal state of the parts than in the morbid.

This point I deduce from some cases of corneal and conjunctival inflammation experimented upon, and in a specially carefully tested case of bad superficial excoriation of the cornea as result of a burn, and in which lead wash had been used by some one. It was almost impossible to more than render pricking of the cornea tolerable, while in three other cases of my own and one by Dr. Tangemann, my assistant, the corneal opacities could be tattooed with almost no pain, if the remedy was put in every few moments.

2d. The necessity of using the drug during the operation, as its effects seem to be neutralized by the manipulations.

This would seem to have been demonstrated by the tattooing cases.

3d. As fresh surfaces are exposed, more of the drug must be used, and a few minutes must be given for its absorption, as for example in the operation for strabismus. If care is taken to instil the solution into the wound repeatedly, the operation can be robbed of about all its pain, as I have demonstrated in two cases.

It would be fair to conclude from the above that enucleation might be done with very little pain, if sufficient time is taken for the medicine to act, constantly instilling it into the wound.

4th. That the sensibility of the iris can be, to some degree at least, diminished.

From my personal experience in three iridectomies, two being made as part of the Graefe cataract operation, the other for artificial pupil, I could not say that all sensibility of the iris can be set aside. It must be borne in mind that a large portion of old persons will not complain at all of any of the steps of a cataract operation, hence it will require a large number of observations to settle this point.

In my iridectomy case, after the corneal incision, I repeatedly allowed not only a two but a four per cent. solution to enter the eye by making the wound gape and waiting ten to twelve minutes, even though the conjunctival and corneal sensibility had been gone for ten minutes before instilling into the wound, and yet the patient complained that pulling the iris gave pain. In the four cataract cases I have used it in, two were iridectomised and two not, and the operations were all absolutely painless. (I refer the reader to the statement made above in regard to extractions in old people.)

There seems to be no doubt about the drug acting as a contractor of blood-vessels. It is also feebly mydriatic in its action—the mydriasis in extreme cases lasting thirty hours. So far I have failed to find any case in which its near point was influenced, showing a paresing effect on the ciliary muscle, though, since we can scarcely have mydriasis without some paresis of accommodation, further investigations will probably show that the drug extends its influence to this muscle. The practical point in this connection is that neither the mydriasis nor paresis of accommodation are sufficient to incommode the patient. Temporarily at least the new anæsthetic has a controlling influence over pain in the eye, arising through various morbid conditions, but in how far it may be applicable in the various painful inflammations cannot be determined till it is produced in greater quantities and the price so reduced as not to render it prohibitive. Certainly if it will pass through to the iris at all—and its mydriatic effects show that it does to some degree—it should be of service in iritis. Its various properties, acting as it does as a contractor of blood-vessels, as dilator of the pupil, and as a reliever of pain, represent our ideas of a typical mydriatic, but unfortunately the fundamental property of a typical mydriatic is lacking in it, viz.: power and persistency. I have found in two or three well-marked instances that if used after the full effects of eserine have set in, it quite sets aside the pain.

In aural practice it serves a valuable purpose in passing the catheter through such nostrils as are extremely sensitive, and for reducing the sensibility of the membrani tympani and mucous membrane where perforation exists and fungous growths are to be removed or treated.

Even though the enthusiasm excited by the drug should have led us to see results not borne out by extensive use of it, and have excited expectations not to be realized, still, to be able to render painless the painful operations on the conjunctiva and cornea, to rob the various steps of lachrymal operations of a large part of their pain, to render strabismus operations bearable, must be recognized as the great ophthalmic advance of recent years.

S. E. Cor. 4th and Broadway, Cin., O., Dec. 1.

MEDICAL PROGRESS.

MATERIA MEDICA AND THERAPEUTICS.

Sunstroke Treated by Rectal Injection of Ipecacuanha.—Dr. Jos. Bancroft (*Australian Medical Gazette*), finding it difficult to administer medicines by the mouth in cases of sunstroke, as they may be drawn into the wind-pipe, and observing that cases which vomited made better recoveries than others, tried emetics, and found it easy to bring about vomiting by injecting ipecacuanha into the rectum. This he does by as soon as possible injecting into the bowels a drachm of ipecacuanha rubbed up in two ounces of water. After the injection he removes the whole of the dress from the chest and abdomen and irrigates the surface with iced water in a watering-can so long as the temperature seems to require it; but, though the skin may be cooled, the thermometer will frequently indicate a body-heat of from 105° to 108°. Vomiting generally takes place within half an hour, and it is astonishing what a quantity of fluid is at times rejected.

Malt Extracts as Food.—Dr. J. Milner Fothergill (*Practitioner*) writes very encouragingly of the influence of malt extracts as food. Their use is the direct outcome of the practical aspect of chemical knowledge in its bearing upon clinical medicine. The chemist observed that in the process of malting the starch of the barley underwent precisely the same change as does starch in the human mouth, viz.: a conversion of the starch into a grape-sugar under the action of a ferment (diastase). The identity of the change led to the utilization of the diastase of cereals for the needs of human infants where the digestion of starch is defective. Hence the numerous malt extracts now on the market.

By admixture with farinaceous food before being eaten, or by being taken practically simultaneously with such food, or before the stomach has become distinctly acid in the digestive act, malt extracts have been found highly useful in the conversion of the starch into grape-sugar.

In the malting process the starch of the grain is more or less converted into grape-sugar; probably some is converted into maltose, while some is less completely acted upon, but is put forward some way toward grape-sugar. In addition, however, to this amyloid metamorphosis, the albuminoids of the grain, and the mineral salts thereof, are retained in a soluble and highly digestible form in malt extracts. As a consequence, malt extracts form a most useful food where the digestion is gravely impaired, whether in infants or in adults. They constitute, indeed, a food of a highly nutritious character in small bulk, and therefore available when the stomach resents the presence of any bulk of food. He cites two cases to illustrate this, one of a middle-aged woman who was "wearing out by starvation," and had tried everything except malt extracts. She was ordered a teaspoonful of malt extract every hour, and lived *entirely* upon this for about two weeks, and then she was able to take other food in small quantity, and continued the malt extract, feeling well satisfied with it at the end of six months of the treatment. In another case, one of cancer of the stomach, with contraction of that viscus to the size of a cricket ball apparently, and where all food was rejected more or less completely, the Cremor Hordeatus Soefflundi (cream deprived of much of its water and preserved by malt extract) was given in a small quantity, about the size of a filbert, every hour; the patient rallied, was much better, and three months later was still holding her own. Comparatively few stomachs rebel against its use.

In many cases where the digestive powers are very feeble, malt extract as a food requiring a minimum of the digestive act is very useful. It can either be taken alone or added to some warm milk. In such form it can be taken an hour, or an hour and a half, after a meal, in many cases with advantage. Especially when some food is required in the course of the night, this admixture of milk and malt extract is of service. It can be prepared at bedtime and kept near the bed in a hot water jug—the lid preventing any taint of the room—and be kept warm under a cover.

The many prepared foods for infants now sold are equally good for dyspeptics. They consist of flour which has been subjected to a high temperature. That is the main fact to remember. In its solubility in the digestive act there is all the world of difference betwixt raw uncooked flour, and flour which has been previously cooked, as prepared food, or baked flour. Such cereal matter can be added to milk, to beef tea, or made into puddings, with the greatest advantage. Farinaceous matters of this "baked" flour order are especially indicated where the digestion of starch is feeble, whether malt extracts be used therewith or not. By the combination of the two excellent results can be attained in cases of grave indigestion. Dr. Fothergill gives three illustrations in cases to support his views.

Mellins's food he looks upon as a most palatable preparation. Liebig's malted food extract is not nearly so toothsome. Malted foods differ from malt extracts in that the diastase is killed by the heat employed. As food they are about as good as malt extract; but they possess no diastasic power. Further, in cases where ordinary sugar undergoes acetous fermentation in the stomach, malt preparations are indicated; he quotes from Dr. Mitchell Bruce as saying, "Maltose is a form of sugar which does not ferment, and will not give rise to acidity and dyspepsia." Sugar, as a main source of fat, is indicated in all cases of emaciation, and in the sadly numerous cases where acidity is caused by ordinary sugar, in malt extract and malted preparations, we find a sugar of the highest utility in practice as not liable to acetous fermentation.

MEDICINE.

Renal Coma.—Dr. Robert Laundly reports to the *Medical Times* an interesting and instructive case in which he calls particular attention to the subject of renal coma. The patient was a woman 20 years of age, anæmic, lancinating pains in the region of the spleen, bowels loose, three motions a day, vomiting;

twenty ounces of urine daily, which was highly albuminous, pus, no sugar. Was taken with a convulsion, lasting about five minutes, fourteen hours before death. This was followed by a semi-comatose state with the pulse 120 and respirations 24, deep and sighing. On auscultation the air could be heard entering freely into the thorax. She railied somewhat after an injection into the veins of a solution of sulphate of soda, becoming conscious, but soon sank. At one time the respiration became noisy and she was slightly delirious. The urine, drawn on the day of her death, was reddish-brown in color, putrid, alkaline, ⅓ column of pus, sp. gr. 1,011, *gave a deep brown color with ferric chloride* not diminished by heating. Albumen about ⅓ column, no sugar. Microscopically there were present granular cells, squamous and pyriform epithelium, bacteria and blood corpuscles. In the post-mortem evidences the kidneys were the seat of the most pathological interest, the right kidney weighed only 1¼ ozs., pelvis dilated, medullary and cortical substances indistinguishable, measuring together only a quarter of an inch in breadth. In the left hypochondrium was a mass weighing 38 ounces of adhering duodenum, pancreas and descending colon—in which mass was a cavity the size of an orange, containing purulent fluid—inside this cyst wall was the left kidney, in a condition of sacculated dilatation. All normal kidney structure was absent. There were calculi in both kidneys, but both ureters were patent.

The peculiar interest which attaches to this case is that it presented striking analogies to that form of coma which Kussmaul described as occurring in diabetes, and which goes by his name. The characteristic symptoms of Kussmaul's coma is dyspnœa with free respiratory movements and unobstructed air passages. This has been accepted by Senator as a typical symptom. The other symptoms are rapid feeble pulse, epigastric pain; in this case the nurse said that just before the convulsions the patient complained of *pain in the stomach*, excitement, followed by coma. And lastly, a symptom to which much attention was at one time paid—the peculiar reddish-brown or Burgundy red reaction of the urine with the perchloride of iron. Kussmaul attributed these phenomena to intoxication by acetone, the urine reaction being held to indicate its presence. In a large number of experiments on animals and men, including persons suffering from diabetes, large doses of acetone and aceto-acetic acid have failed to produce any of the characteristic phenomena of this form of coma, although Penzoldt found that by retarding excretion through the lungs, intoxication, hebetude, and coma followed the introduction of large quantities of acetone into the circulation of rabbits, and he contends that when the lungs are disabled by any cause these results will follow. As regards this, Dr. S. Mackenzie found that pulmonary disease was absent, or only recent and slight, in fourteen out of nineteen cases of diabetic coma, while at Gray's Hospital, fourteen out of twenty-six cases of coma presented no visceral lesions whatever, and several cases dying with phthisis or pneumonia presented no coma.

The case related differs essentially from the classical type of uræmic coma in important details. Were there any features by which it might be distinguished from Kussmaul's coma? In the latter condition, convulsions are rare, but yet they do occur; the temperature is normal or subnormal, but so it is in uræmia, except after a convulsive attack. Lastly, the red coloration with ferric chloride did not disappear or diminish on heating. This is held to distinguish the reaction from that produced by salicylic or carbolic acid in the urine, but neither of these drugs were being used in any way about the patient. (Here, however, as a note indicates, any of the acetic, formic and sulpho-cyanogin compounds, which may occur in the urine, give this reaction).

We must, therefore, no longer regard this type of breathing as peculiar to the coma of diabetes, but as a phenomenon which may occur in connection with the terminal coma of a variety of conditions, of which the only connecting link is that there is profound disturbance of the nutrition of the tissues.

ALCOHOLIC PARALYSIS.—Prof. Charcot recently delivered a lecture on this subject at the Salpetrière (*Gazette des Hôpitaux; Med. Times*). He gave to Magnus Huss the honor of having been the first to mention the existence of paralysis in chronic alcoholism. Lancereaux, in 1864, first described its form as resembling saturnine paralysis in the fact that the extensor muscles of the limbs were affected by preference; Leudet added to this that the paralysis was painful—affected the lower limbs, and most especially at night, with integrity of the spinal cord, and lesions of the peripheral nerves and of the muscles to which their diseased branches were distributed. Wilks and Lockhart Clarke, in 1872, noted a disease which they designated as alcoholic paraplegia, which was preceded by motor disturbances, and pains recurring in paroxysms, which the patient compared to electric shocks.

In regard to the etiology, the prior history must be sought for, as in the early periods it is very difficult to obtain an avowal, while, when the affection is constituted, it becomes associated with a certain mental condition. It is very improbable that one form of alcoholic drink rather than another will produce this effect. With that symptom of intoxication, the *nocturnal dreams*, with their nightmares and frightful visions, one of the first indications of this form of paralysis seems to consist in the appearance of *vivid pains*, which are especially felt in the lower extremities. These pains sometimes nearly resemble those which are met with in the first stage of locomotor ataxy, consisting in prickling formications, lancinating and true fulgurant pains which traverse the limbs. They soon become generalized, occupying *symmetrically* the two lower limbs by preference, and accompanied by cutaneous anæsthesia, they invade the upper extremities, and after a certain time, give place to analgesia. The sensation of cold, of heat, or of puncture is no longer felt in the limbs attacked, and contact with the ground is not perceived. It is then that motor paralysis supervenes, which is also symmetrical and affects the upper and lower extremi-

ties, especially the latter, influencing by preference certain groups of muscles, namely, the extensors. The patella-reflex is abolished. Alcohol always seems to respect the muscles of the face. There are marked vaso-motor phenomena in the diffused red or sometimes violaceous color, and the peri-malleolar doughiness which almost constantly exists, without the urine furnishing any satisfactory explanation. At other times there are local sweatings of the hands or feet which appear suddenly, and cease in the same manner, or there are alternating paleness and redness. Finally, at the end of a certain time, there are formed amidst these equine-shaped feet fibrous adhesions of the tendons and thickening of the connective tissue which surrounds the tibio-tarsal articulation, adhesions which render the restoration of the normal movements of the feet impossible. If these patients recover, a surgical operation will be necessary. The paralyzed muscles are softened and their electric excitability is notably diminished.

In regard to the mental state of these patients, it is the same with them as with the subjects of morphinism, they always, when in the early stages of their malady, still retain all their lucidity, and stoutly deny its etiology, while, when the paralysis is confirmed the memory is also lost. The progress of the paralysis is essentially chronic, the acute form being very rarely met with. Its course is progressive, and fatal if the drinking habits are not abandoned, or if the intoxication is already of too long a date. In a young man a paralysis of three months' duration disappeared under the influence of treatment by isolation, the suppression of alcohol, and hydro-therapeutics; but as he yielded to habits of drinking a relapse ensued. The diagnosis differentially in the early period from commencing locomotor ataxy is not easy. The subjects of diabetes and saturnism may also be the victims of alcoholism.

Anæsthesia of the Optic Nerve.—M. Dianoux (*Bulletin de la Société Francaise d' Ophtalmologie; Med. Times*), finds this affection as occurring only in women, or in men who are, so far as their nervous system is concerned, women by nature. The onset is sudden, often during sleep, there are no premonitory symptoms, and there is no pain, though there is often a sense of a dull weight in the head. From the first the blindness is usually absolute, and may last an indefinite time; it rarely affects both eyes, the eyes are equally liable to be attacked. Examination of the eye yields absolutely negative results. It may undergo spontaneous cure, or it may persist for an indefinite time unmodified, or it may gradually pass into atrophy. The diagnosis is easy, the only difficulty which could arise is the weakened form of neuritis which betrays itself by a persistent discoloration of the disc. The prognosis is favorable, the cases that are most favorable are those of the longest standing where the blindness is absolute; if atrophy comes on, or if the onset is gradual, the outlook is not so good. Youth, a delicate constitution, a lymphatic temperament, uterine diseases, and hysteria constitute the best known predisposing causes. M. Dianoux regards anæsthesia of the optic nerve as only a very slight form of the morbid process which leads to neuritis and atrophy of the disc after ischæmia. There is some circulatory disturbance followed by plastic exudation within the sheaths of the nerve, leading to a modification of the myelin which renders it a bad conductor. This exudation may be absorbed without any traces being left behind, or it may organize and compress the capillaries, leading to permanent discoloration of the disc; or if the exudation is more abundant, it may lead to œdema of the disc, and ultimately to organization of the new products "choking" the vessels and nerve fibres. By way of treatment he recommends tonics, quinine, iron, and cod liver oil, the hypodermic injection of strychnia locally, and the use of the continuous current; the uterine functions should be attended to.

Clitoridian Crises and Crises of Muscular Fatigue in the Onset of Locomotor Ataxy.—Prof. Pitres, of Bordeaux, in the *Jour. de Med. de Bordeaux* (*Jour. de Med. et de Chir.*), gives two interesting cases which illustrate the clitoridian crisis as first described by MM. Chuveot and Bouchard, in 1866. The first case was in a patient aged 48 years, where the disease made its appearance with relatively slight gastric crises. Twice a month, without any physical or psychical provocation, the patient felt a pleasurable sensation in the clitoris, which persisted, increasing in intensity, from a quarter of an hour to twenty minutes, and then terminated by a complete erotic spasm, with an abundant vulvo-vaginal secretion. This took place sometimes in the day, sometimes at night, and with no prodromata. The erection of the clitoris ceased soon after the ejaculation, and left behind no especial fatigue. The second patient was 32 years of age, and subject for some time to very acute pains in the head, which were taken to be neuralgic. With her, clitoridian crises were preceded by a violent beating of the heart; then the genital organs became the seat of voluptuous sensations, resembling those felt in coitus. The crisis terminated by an abundant vulvo-vaginal secretion, after which the patient remained exhausted for some minutes. These crises were reproduced four or five times a month for ten years, coming on indifferently by day or night, and unprovoked by any erotic ideas. They often attacked the patient while occupied with her household duties, or when sitting down. A year later the ataxy was definitely confirmed, and the clitoridian crises disappeared as the fulgurating pains became established in the lower limbs.

The crises of muscular fatigue have never been systematically described. Certain patients, at the onset of progressive muscular ataxy, complain of well-marked attacks of muscular fatigue, which occur suddenly, without appreciable cause, persist for several hours or days, and pass off without leaving any persistent fatigue behind. These attacks recur at variable intervals, day by day, week by week, or at longer periods. The pains which characterize them are not acute, lancinating, or shifting, like fulgurant pains. They consist in a painful sensation of lassitude and muscular fatigue, as if the patient had been subjected

to a too violent or prolonged physical exercise (fencing, riding, or swimming). This sensation has its seat in the muscles of the limbs or of the sacro-lumbar region. It is sometimes so severe as to compel energetic and vigorous subjects to lie down in the middle of the day, and to rest in the decubitus-dorsal position until the attack passes off. These crises may continue for many months or years, as the sole morbid symptom recognized by the patient. In the three cases cited by M. Pitres, they preceded the more positive signs of tabes, after the development of which they disappeared.

The practical application of the foregoing is that these crises are sufficiently marked and positive in their character as to allow of a diagnosis of progressive locomotor ataxy, in the absence even of any evidence of incoördination of movements.

ANILINE DYES.—Prof. Poincaré, of Nancy, gave to the Hygienic Congress at the Hague this year the results of his experimental researches upon the effects of the aniline colors (*L'Art Medical*). He found the following to be perfectly harmless; blue, yellow, orange, cachou, brown, Java indigo, sulpho-naphthalate of calcium, methyl blue, chrysome, sulphonilic acid, naphthol eosine, rocelline, methyleosine, erythosine, fluoreosine, sulphi-naphthol, and naphthionic acid.

The following produced death: Saffron, Hoffman's violet, parotoluidine, acetonilide, violet, phtalic acid, picric acid, diphenylamine, orthotoluidine, naphthylamine, binitro-benzine, binitro-toluene, resorcine, green.

Anthrasene and ponceau gave serious disturbances, as also chrysoid, fuschine, toluene and dimethylaniline—the latter of which sometimes produced death.

None of these substances produced the marked effect upon the temperature as described by writers. Among the non-toxic substances only one, sulphonilic acid, produced a lowering of the temperature. On the contrary, nearly all the toxic substances lowered the temperature curve, among the most marked of which were the acetonilide, violet, parotoluidine and Hoffman's violet. Emaciation was produced with but four of the non-toxic substances, and with them it was insignificant.

There was a marked analogy in the symptoms produced, the most constant of which were as follows:

(a) A great interference with movements, developing into a paresis, and even a more or less general paralysis. Paresis was absent in but two substances; orthotoluidine and toluene. The toluene produced an increase of activity in the muscular force.

(b) Convulsive tremblings most marked with ponceau, toluene and dimethylanine.

(c) Coma, which was very marked with ortholuidine, binitro-toluene and dyphenylarime.

(d) Dyspnœa accompanied with tracheal râles with toluene and sapranine, and violent cough with Hoffman's violet and dimethylaniline.

(e) Irregularities in the heart beat, particularly with toluene.

(f) Anæsthesia which was only noticed with orthotoluidine.

Speaking generally the derivatives of toxic aniline have rarely altered in an appreciable manner the histological elements, and seem to have produced death by altering the composition of the blood and interfering with vascularization.

The principal practical conclusions are: 1. The use should be interdicted in the coloring of children's playthings, foods, wines and liquors, of such of these substances as are recognized above as toxic, particularly as they are very often combined with arsenic, lead or mercury. 2. These toxic substances may be tolerated in the coloring of tissues and papers, but on the condition that they are perfectly fixed. The rules which follow are for the guidance of workers in these dyes.

In the ensuing discussion M. Napias called attention to the activity of these dyes in a state of powder or dust, particularly *eosine*, the effects of which in workmen who manipulated this substance, he had noticed in the form of erythematous and papular eruptions, with irritations of the mucous membranes. Unfortunately those colors which are not toxic in themselves are made so by combination with lead.

M. Clonet, in confirming the preceding statements, had observed that these aniline colors were without bad effect when in a state of solution on account of the minute proportion of the coloring principle present, but when simply deposited upon the tissue and not fixed in the fibres of materials, they are absorbed in the powdered state. But, particularly regarding the action of fuchsine, he believed it to be innocuous if the aniline was pure. He, with some of his students, have taken up to 40 grammes in the course of a few days without producing any bad effects. In the case of one of his students where the urine was examined to determine if fuchsine was eliminated by the kidneys, the urine was found to be albuminous, but ceased to contain albumen on the fourth day of the experiment. A similar experience has resulted in the administration of this substance to hospital cases representing different forms of albuminuria. As to non-arsenical *grenat*, it has been taken in larger doses than fuchsine by some of the students, with no other bad effect than vomiting, caused by the repugnance it provoked.

NAPHTHALINE IN DIARRHŒA AND CYSTITIS.—For the last three years Professor Rossbach, of Jena, (*Med. Press*) has employed naphthaline in all cases of diarrhœa that have come under his care. He concludes that it is of great service in all cases of chronic intestinal catarrh, with or without ulceration, attended by chronic diarrhœa, and in all cases the stools in the course of from five to fifteen days become of normal frequency and consistence. Some of the naphthaline given passes over into the urine, and the effect in the case of urinary trouble was noted to be exceedingly favorable. Pus, blood, and vibrionis quickly disappear from the urine after its administration. It was given in doses of 2 to 3 grm. per day. After half a grain daily the appetite was often improved.

THE

Journal of American Medical Association.

PUBLISHED WEEKLY.

The Editor of this Journal would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, DECEMBER 13, 1884.

The Next Meeting of the American Medical Association.—We hear from various sources intimations that a movement has been started to change the time of the meeting of the Association in New Orleans, which was appointed to commence on the last Tuesday in April next, to an earlier day. The reasons given for the proposed change are, that the International Cotton Exposition is to close on the 1st of May, only four days after the time appointed for the Association to meet, and that the last week in April is likely to be too warm for the comfort of the members. The first of these reasons is simply an error, as we are assured, on the very best authority, that the Exposition will not close until the first of June. We think, also, the apprehensions in regard to high temperature are without foundation. The Association held its meeting in New Orleans in 1869, commencing on the first Tuesday in May, one week later than the time appointed for the meeting next spring; and yet the weather was exceedingly pleasant and genial. We have nowhere spent a more comfortable week than in New Orleans during the first week in May, 1869. When at Washington the Association was invited by the profession of New Orleans to hold the next annual meeting in the latter city, the time agreed upon was that suggested by the representatives extending the invitation. And certainly no attempt should be made to change the time now, unless such change is asked for by the local Committee of Arrangements, on which devolves the duty of making all necessary provision for a profitable meeting of the Association. So far as we are informed, that committee desires no change in the time. On the contrary, its members would regard a change to the first week in April as very objectionable in every respect.

Mediastinal Tumors.—Tumors of the mediastina possess more of a pathological than of a clinical interest. This is particularly true of new growths which invade the heart either primarily or secondarily. Until the researches of Virchow declared their real nature, mediastinal tumors were regarded for the most part as being carcinomatous. It is now known, however, that in the majority of instances they are sarcomatous or lymphosarcomatous. Very rarely the heart may be the seat of both cancer and sarcoma, but tumors in this situation are generally secondary. So slight are the symptoms they sometimes occasion, that their presence is not even suspected and is only discovered *post-mortem*. In all cases, where the probability of their existence is entertained, a positive diagnosis is extremely difficult. As a matter of pathological interest, and to illustrate the impossibility many times of differentiating new growths from valvular or other organic disease of the heart, we give some facts communicated by P. Liborius to *Virchow's Archives*, 93, page 401, and recapitulated in *Centralblatt f. d. Med. Wiss.* Oct. 4, S. 702.

In the course of twelve years, 7,566 autopsies were made at the Marine Hospital of Kronstadt, and in but 31 cases were sarcomatous tumors discovered. Four of these implicated the heart and pericardium, as follows:

The first narrated by Dr. Liborius was the case of a vigorous, well-built sergeant of marines, aged 34 years. The first symptom referable to a mediastinal tumor was experienced seven months antecedent to his death, and consisted of a moderate pain in his left side and left arm. This pain disappeared after a few days. Three months later a physician discovered an impurity of his heart sounds. After the lapse of another month the man was seized with acute articular rheumatism which gradually subsided, leaving an obstinate cough behind. Upon his entrance into the hospital, five weeks prior to his death, he presented the following signs and symptoms: Dyspnœa, cough, cyanosis of the face and upper extremities; the cardiac impulse, in the fifth space, was weak, and the feeble heart sounds were accompanied by a systolic murmur; precordial dullness was increased transversely. Subsequently the *sputa* became bloody, dyspnœa increased; the cardiac dullness advanced to the left anterior axillary line, the left arm and lower extremities became œdematous, and the patient grew

delirious the day before his death. No diagnosis had been possible *intra vitam*. The necropsy revealed a teleangiectatic, round-celled sarcoma, as shown by the microscope, and having in places quite a luxuriant development of connective tissue. The tumor was almost as large as a man's head, and had its seat in the pericardium, by which it was nearly enveloped. Superiorly to the left, it had perforated the pericardium, to which at this point it was intimately adherent. The sac of the heart was implicated in the process to a considerable extent. The heart had been pushed to the right and compressed. Two small tumors were also found in the upper lobe of the left lung. Liborius thinks the growth originated in the pericardium, and not in the lymphatic glands nor loose areolar tissue of the mediastinum. This case is remarkable because of the almost entire absence of pressure and other signs, such as dilatation of veins, enlargement of lymphatics, etc. Circumscribed œdema was a late symptom. Indeed, the disease might easily have been mistaken for a valvular one, resulting from the acute inflammatory rheumatism. The extension of cardiac dullness to the left of the mammillary line was too rapid, we think, to be referred to dilatation of the left ventricle. It would be interesting and instructive to know the exact character and the point of maximum intensity of the systolic murmur. The case certainly carries an important lesson for diagnosticians.

In another man, thirty years of age, the autopsy revealed a myeloid sarcoma, twelve to thirteen ctm. in diameter, located in the posterior mediastinum. It had perforated the superior vena cava and likewise forced its way into the right auricle and right ventricle, having occasioned thrombosis of all veins emptying into the descending vena cava and of the right femoral vein. There were double hydrothorax, œdema pulmonum, and subcutaneous dropsy of the whole body.

In this case diagnosis must have been less difficult, since it is likely the tumor gave rise during life to a circumscribed area of dullness between the *scapulæ*. Cardiac murmurs probably existed and must have been interesting.

In a woman fifty years of age a spindle-celled sarcoma was found situated on the right auricle. It was as large as a man's fist, nodular, of firm consistence, and had eaten into the heart-muscle. The inner surface of the auricle was thickly studded with concretions of a nature not stated, some of them of the size of a pigeon's egg. Numerous secondary growths also existed. Here too, it would be instructive to learn whether or not signs referable to the heart had been noticed in life.

In the fourth case, a woman seventy-six years of age, a round-celled sarcoma of considerable size existed in the posterior mediastinum, while the inner surface of the left half of the pericardium was closely studded with secondary growths, some of them as large as hazel-nuts. It is unfortunate that it is not stated whether or not in this instance the growths had given rise to pericarditis and pericardial friction sounds, since this result is said to be produced by carcinoma, not by sarcoma of the pericardium.

DR. ABRAM GROESBECK, one of the oldest and most honorable members of the profession in this city, died on the 24th of November, 1884, at the age of 74 years.

He had practiced medicine with fidelity and success half a century; was a well educated man, with all the qualities of a true gentleman, and highly esteemed by all who knew him. Appropriate notice of his death was taken at a recent meeting of the Chicago Medical Society, the proceedings of which we shall give in our next issue.

DR. J. G. THOMAS, of Savannah, Ga., a member of the General Committee on the Organization of the International Congress of 1887, who was taken severely sick before his arrival in Washington to attend the recent meeting of the Committee, died in the latter city on the 6th inst. A further notice will be given in the next issue of the JOURNAL.

DR. MAHOMED, formerly secretary of the general committee of the British Medical Association on the Collective Investigation of Disease, died in London, Nov. 22, 1884, of typhoid fever. Dr. Mahomed was an able and active worker in the profession, and his death will be greatly regretted on both sides of the Atlantic.

INTERNATIONAL MEDICAL CONGRESS.—The official proceedings of the first meeting of the General Committee on the Organization of the International Medical Congress for 1887, will be found under the head of miscellaneous matter in the present number of the JOURNAL.

MISPLACED.—In the Paris letter, published in the JOURNAL for Nov. 6, 1884, two lines that belong at the bottom of the second column of page 530 the printer has placed at the bottom of the first column of page 531; a dislocation which is well calculated to puzzle the reader.

SOCIETY PROCEEDINGS.

REPORT OF PROCEEDINGS OF THE ILLINOIS STATE BOARD OF HEALTH.

QUARTERLY MEETING, NOV. 20–21, 1884.

The regular quarterly meeting of the State Board of Health of the State of Illinois was held in the rooms of the Board in the Capitol building at Springfield, Nov. 20–21, 1884.

Present, the Hon. Newton Bateman, President of the Board, and Drs. Clark, MacKenzie, Kreider and Rauch.

After the reading and approval of the minutes of the last meeting the Board went into executive session, for the consideration of charges against certain practitioners under the Medical Practice Act.

At the evening session the Secretary presented the following

QUARTERLY REPORT.

During the quarter ended Sept. 30, 1884, there were received in the Secretary's office 1,623 communications, letters, reports, etc., and 3,472 letters, postals and other written communications were sent out. Of printed matter there were distributed 2,689 copies of the Fifth Annual Report and upwards of 200,000 copies of other printed matter—the mail and express packages sent out during the quarter aggregating 8,982 pounds' weight, or over four tons.

Among the more important written and printed documents distributed were those concerning the vaccination of school children, sent to about 12,000 school districts, through the County Superintendents:

Concerning the Sanitary Inspection of Public Buildings—especially of Almshouses, Jails and similar institutions—sent to County Commissioners, Boards of Supervisors and other officers:

Concerning the Sanitation of Railway Buildings, Grounds and Travel, sent to the General officers of thirty-three Railway Companies operating in this State:

Concerning Preventable Diseases, sent to localities in which Small-Pox, Scarlet Fever, Diphtheria or Typhoid Fever appeared.

In connection with these latter circulars, the blanks for Reports of Epidemic Diseases have been revised, and a new edition has been partly printed, together with a circular of instructions for their use.

A pamphlet of 51 octavo pages has also been prepared, printed and distributed, containing the Public Health Laws of Illinois; the Form of an Ordinance for the Protection of the Public Health, suggested for adoption by communities which have no health organization, and for substitution for existing health ordinances which have been found defective or inoperative; Rules and Regulations concerning Contagious Diseases; concerning vaccination; concerning the Sanitation of smaller Cities and Towns; and concerning the Principles and Practice of General Sanitation.

MEDICAL PRACTICE.

State certificates, entitling to practice medicine and surgery in Illinois, were issued to 105 graduates, 88 of which were granted unconditionally upon the diplomas of medical colleges in good standing; 6 upon examination in omitted branches, to graduates of colleges which had not fully complied with the schedule of minimum requirements of the Board; and 11 upon presentation of evidence of proper preliminary education, to graduates of colleges, otherwise in good standing, but which had not yet enacted a matriculation examination at the beginning of the session of 1883–84. There were also issued 8 duplicate certificates upon affidavits of the loss or destruction of the originals, and one certificate based upon length of practice in the State.

To midwives 6 certificates have been issued upon the diplomas or licenses of recognized schools of midwifery, and 3 upon satisfactory examination.

QUACKS AND DISREPUTABLES.

With the exception of those in Chicago, the fraudulent advertising quacks and disreputable specialists seem to have been pretty well weeded out of the State. For the first time since the passage of the Medical Practice Act there have been no complaints received concerning this class, except as above indicated.

After repeated attempts a grand jury was at last found which indicted eleven of the more prominent of those in Chicago during the month of July, but thus far none of the number has been convicted.

The noted quack, R. C. Flower, of Boston, Mass., has finally abandoned his efforts to secure a foothold in Chicago. By means of insidious and plausibly-worded advertisements, frequently of over a column in length, he succeeded in doing quite a thriving business for a time, and charged the most exorbitant fees. Unable to comply with the law and obtain a State certificate, and being refused an itinerant license, he was compelled to make appointments with his patients at Michigan City, in Indiana, and at Davenport, in Iowa, only venturing to stay in the State for a day or two at a time, and leaving before his arrest could be effected. Some of his dupes and victims have lodged complaint against him, and are now anxious to secure his arrest and punishment.

The suit of Frank B. Smith, one of the "K. and K. Surgeons," against the Secretary of the Board, for $50,0000 damages, alleged to have been sustained by the revocation of his certificate by the Board on charges of unprofessional and dishonorable conduct, and which suit was brought at Detroit, Mich., in the United States District Court, has been dismissed, and the plaintiff mulct in costs.

THE PUBLIC HEALTH.

Small-pox, noted as existing in isolated localities in the southern portion of the State at the date of the last report, was practically extinct at the close of the quarter, with the exception of a few cases in Marshall county, the contagion of which was introduced from Indiana. Reports of a serious epidemic of the disease in Ballard county, Ky., threatening Cairo and the line of the Illinois Central Railroad, led me to

visit the locality early in August, after communicating with the Secretary of the Kentucky State Board of Health. The precautions necessary to protect the threatened region of our own State were instituted, and these were efficiently supplemented by the action of the management of the Illinois Central, under the direction of the Superintending Surgeon, Dr. John E. Owens.

Notwithstanding the freedom of the State from this disease at the present time, and its subsidence abroad, the necessity for vaccination and re-vaccination in all localities where there are still unprotected individuals is likely to become apparent upon the approach of cold weather; and it is incumbent upon local health authorities to secure the fullest protection in season.

There has been a diminution in the prevalence of scarlet fever during the quarter, but toward its close there is noted an increase of diphtheria and of typhoid fever. The demand for the Preventable Disease circulars of the Board has, in consequence, been much greater than usual, and that on diphtheria has been reprinted, in part or whole, by many newspapers.

In response to a telegram from Dr. Salmon, the Veterinary Expert of the Department of Agriculture at Washington, I went to Peoria on the night of the 17th of August, and on the following day examined some cattle suspected of being infected with pleuropneumonia. The post-mortem examination of one of these animals confirmed the diagnosis, and since that date the disease has been detected in several other localities. Occasional cases continue to be reported, but the State Veterinarian believes the outbreak is in a fair way to be suppressed. The necessity for additional legislation on the subject of the contagious diseases of animals, already suggested from time to time in these reports, is emphasized by this outbreak.

SANITARY INSPECTION AND WORK.

The results of the efforts made in accordance with the instructions of the Board at the last quarterly meeting, to secure a general inspection and improvement of sanitary conditions, have been very gratifying. Reports from two hundred and thirty cities, towns and villages have thus far been received in reply to the circulars sent out, and an immense amount of work has already been accomplished in remedying the defects disclosed by the inspection. In many localities it is known that the reports are deferred until the completion of work already being pushed forward in anticipation of the advent of cholera next year.

I have personally inspected a number of State institutions, and find them in as good condition as could be expected, in view of obvious faulty construction or location, from a hygienic standpoint. Such suggestions of improvement as I have found it necessary to make, have been carried out as far as practicable.

Responses to the special circular concerning Railway Buildings, Grounds and Travel, have been received from sixteen companies, comprising the more important of all the roads operating in Illinois.

On the whole, there is cause for congratulation in the progress already made in this effort of the Board to secure the best attainable sanitary condition of the State as the most efficient and valuable mode of warding off the epidemic of Asiatic cholera.

It is to be wished, however, that the newspaper press, especially in the smaller cities and towns, would devote some of their space to articles urging the fundamental importance of individual sanitary effort. Without this, boards of health and health officers are, to a great extent, inadequate to cope with some of the more serious evils. A large portion of the community needs to be taught that personal cleanliness, and cleanliness of the household and premises, are among the highest results of sanitary science, and that, of themselves, they constitute the best safeguards against contagion and preventable disease.

RECOMMENDATIONS AND SUGGESTIONS.

The following recommendations and suggestions are respectfully submitted:

First—That a thorough sanitary survey of the State be inaugurated not later than the 1st of January, 1885, under the direction of the Board.

Second—That a committee of the Board be appointed to prepare revisions and amendments of the laws of the State regulating the practice of medicine, and concerning the protection of the public health. The defects of the statutes concerning both these subjects are patent, and should be remedied as speedily as practicable.

Third—That action be taken in anticipation of the forthcoming meeting of the National Conference of the State Board of Health, with reference to the subject of Asiatic cholera.

JOHN H. RAUCH, Secretary.

Upon the conclusion of the reading, on motion of Dr. Clark the report was accepted, the recommendations and suggestions were taken up for consideration, and the following action was had:

SANITARY SURVEY OF THE STATE.

Dr. Kreider submitted the following resolution, which was adopted:

Resolved, That the Secretary be authorized to prepare the necessary blanks and instructions, and to distribute the blanks to the proper authorities of counties, townships and municipalities, for a thorough and systematic sanitary survey of the State, to be begun by January 1, 1885, or as soon thereafter as practicable.

The Secretary explained that it was proposed to begin work in the southern portion of the State and to work northward as rapidly as the weather would permit, so that by the 1st of May, the sanitary condition of every dwelling, in all of its parts, of all premises, outhouses, wells, cisterns, and other belongings, should be made known, the remedy of defects be pushed, and the authority of the Board be exerted wherever necessary to supplement the efforts of local authorities in the preparation of the State to resist the threatened invasion of Asiatic cholera.

NATIONAL CONFERENCE ON ASIATIC CHOLERA.

With reference to the forthcoming meeting of the National Conference of State Boards of Health to be

held in the city of Washington, December 10th, prox., to consider the subject of Asiatic cholera, Dr. Clark offered the following preamble and resolutions which were adopted:

WHEREAS, The members of this Board, having carefully considered the able and exhaustive paper upon the Exclusion and Prevention of Asiatic Cholera in North America, prepared by the Secretary of the Board, find the argument set forth abundantly supported by incontestable facts duly cited in the text, and believe its conclusions and recommendations to be comprehensive, practical and sufficient; and

WHEREAS, This subject is the most important of any which now demands the attention of those charged with the protection of the public health—involving as it does, the prevention of a great sacrifice of human life, of an immense money expenditure, and of serious and wide-spread injury to commerce, manufactures and all other industries—therefore, be it

Resolved, That a committee be appointed to draft a formal expression of the views of the State Board of Health of Illinois concerning the measures which should be adopted and enforced by municipalities, State and the National Government for the protection of the country against an invasion of Asiatic cholera.

Resolved, That the action of the National Conference of State Boards of Health, held at St. Louis, October 13–15, 1884, on the subject of Asiatic cholera be, and the same hereby is, approved and endorsed by this Board.

Resolved, That the Secretary of this Board be authorized to attend the forthcoming meeting of the National Conference in Washington, D. C., and present to said Conference the action of this Board as above indicated.

On the motion of Dr. MacKenzie, the Chair was authorized to appoint the committee, to consist of five members, including the President as Chairman of the committee. Drs. Haskell, Clark, MacKenzie, and Rauch, and the Hon. Newton Bateman were thereupon appointed as members of the committee.

REVISION OF THE LAWS.

On motion of Dr. Kreider, the President appointed a committee, consisting of Drs. Rauch, Haskell, Kreider, Clark and MacKenzie, to prepare revisions and amendments of the laws regulating the practice of medicine and concerning the public health, to be submitted to the next General Assembly.

During the executive session of the Board the case of Dr. Ed. S. McLeod, of Chicago, was considered. The following extract from the formal notification citing McLeod to appear before the Board, and show cause why his certificate should not be revoked for "unprofessional and dishonorable conduct" sufficiently explains this case:

"The charges against you are that you ply your vocation by means of fraudulent and deceptive advertisements, under assumed names, to-wit: under the alias of "Dr. James" and "Dr. Lucas;" that in order to secure patients you hold out inducements and promises and make suggestions which in themselves tend to promote crime and immorality; that you publish and distribute, through the United States mails and otherwise, to all classes of the community, including the youth of both sexes, obscene circulars and pamphlets, for which you have already been once indicted in the United States District Court, at Chicago, when you pleaded guilty, were fined $500 and costs, and your plates and circulars were seized and destroyed by the United States authorities: That such fraudulent, deceptive and demoralizing practices constitute "unprofessional and dishonorable conduct," within the meaning and intent of the statute, which was enacted for the protection of the people from the ignorant and unscrupulous under the guise of medical practice."

Upon mature deliberation and careful consideration of the evidence offered in support of the charges, the certificate of Dr. Ed. S. McLeod was ordered to be revoked.

After the transaction of the regular routine business, and auditing of accounts and bills amounting to $2,876.55, the Board adjourned.

STATE MEDICINE.

STATE BOARD OF MEDICAL EXAMINERS FOR VIRGINIA.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

The enactment of a law regulating the practice of medicine and surgery in Virginia was noticed in your columns some months ago. At the annual meeting of the Medical Society of Virginia in September last the names of two physicians from the State at large and three from each congressional district (thirty-two in all) were presented to the Governor, in accordance with the provisions of the law, and on Nov. 1 these gentlemen were duly commissioned as "Medical Examiners." In pursuance to the call of the Governor, the first meeting of these examiners was held on Saturday, Nov. 15, for the purpose of organizing and adopting some plan of examination.

It was deemed most important, in view of the number of examiners in the State, and the further fact that a candidate could select any three members of the Board whom he might prefer to conduct his examination, that some plan should be adopted which would make the examinations uniform. With this view a *blank form* for questions was adopted, which provides for six questions on chemistry, eight on anatomy, eight on physiology, four on hygiene, fifteen on materia medica and therapeutics, six on obstetrics, twenty on practice, and twenty on surgery. A clinical examination is also to be required when practicable. "Each examiner is required to ask a question for each number under each branch or subdivision, and to write out the question opposite the number; the blanks thus filled out are to be forwarded to the President of the Board, along with the

written answers to the questions" (and such questions and answers are to be read out before the Board at the annual meeting). "The applicant is required to answer three-fourths of all the questions on each subject satisfactorily." All applicants for practice in the State of Virginia who have not taken out a license prior to Jan. 1, 1885, will be required to pass a satisfactory examination before the Board in session, or any three members thereof whom the applicant may select. The result of this examination is reported to the President, who, if the result be satisfactory, issues the applicant a license.

WM. C. DABNEY, M.D.

Charlottesville, Va., Nov. 20, 1884.

HEALTH IN MICHIGAN, NOVEMBER, 1884.

Reports to the State Board of Health, Lansing, by observers in different parts of the State, show the diseases which caused most sickness in Michigan during the month of November (4 weeks ending Nov. 29), 1884, as follows:

Number of Weekly Reports Received, 172.		For Preceding Month.
Diseases Arranged in Order of Greatest Prevalence.	Per Cent. of Reports Stating Presence of Disease.	Per Cent. of Reports Stating Presence of Disease.
Neuralgia	72	64
Rheumatism	70	67
Bronchitis	67	56
Intermittent fever	60	72
Consumption of lungs	58	60
Tonsillitis	58	44
Diarrhœa	46	75
Remittent fever	44	52
Influenza	42	37
Typho-malarial fever	35	36
Pneumonia	29	22
Erysipelas	27	28
Typhoid fever (Enteric)	22	25
Diphtheria	19	22
Inflammation of bowels	19	22
Scarlet fever	13	9
Whooping-cough	13	16
Cholera morbus	12	31
Membranous croup	10	8
Dysentery	10	44
Cholera infantum	8	28
Inflammation of brain	8	8
Measles	6	6
Puerperal fever	6	5
Cerebro-spinal meningitis	4	7
Inflammation of kidney	2	22

For the month of November, 1884, compared with preceding month, the reports indicate that tonsillitis, bronchitis, neuralgia, and pneumonia increased, and that dysentery, diarrhœa, cholera infantum, inflammation of kidney, cholera morbus, intermittent fever, and remittent fever decreased in prevalence.

Compared with the average for the month of November in the six years, 1879–1884, diarrhœa was more prevalent, and diphtheria, intermittent fever, and consumption of lungs, were less prevalent in November, 1884.

For the month of November, 1884, compared with the average of corresponding months for the six years, 1879–1884, the temperature was slightly lower, the absolute humidity and the day and the night ozone were less, and the relative humidity was more,

Including reports by regular observers and others, diphtheria was reported in Michigan in the month of November, 1884, at 40 places, namely: Adrian, Alton, Armada, Bloomingdale, Byron, Big Rapids, Constantine, Cooper, Decatur, Detroit, East Saginaw, Evangeline, Fruitland, Grand Rapids, Hastings, Howard City, Kalamazoo, Lansing, Leeland, London, Muskegon, Manistee, Mendon, Orange, Penconning, Portland, Port Huron, Portage, Pontiac, Romeo, Richmond, Smith's Creek, Schoolcraft, Vicksburg, Vernon, Vergennes, Vassar, Wyandotte, Warren, Watervliet. Scarlet fever at 22 places: Albion, Algonac, Armada, Brockway Center, Cadillac, Center Plains, Detroit, East Saginaw, Freesoil, Grand Rapids, Kalamazoo, Lansing, London, Manistee, Muskegon, North Muskegon, Pontiac, Portland, Roxand, St. Johns, Vassar, Vicksburg. Measles at six places: Detroit, Grand Rapids, Kalamazoo, Port Huron, St. Joseph, and Whitehall.

HENRY B. BAKER,
Secretary.

Lansing, Dec. 5, 1884.

FOREIGN CORRESPONDENCE.

BERLIN LETTER.

BERLIN, Nov. 18, 1884.

GYNÆCOLOGY.—Dr. Schroeder admits no one to his laparotomies without an especial invitation. The person invited is requested to bathe thoroughly before coming, and to wear a suit of clothes which has been aired, and which has not been in general use. I saw him make a gastro-hysterectomy at half-past seven on the morning of the 15th (most of the operative work is done here in the early morning). The operation lasted one hour and three-quarters, and varied in no essential particular from the routine which I have already described in the *American Journal of Obstetrics*. The actual cautery was used to the stump, and a 10 per cent. solution of carbolic acid was made use of. The stump was well protected by its flaps, so that there was no oozing, and it was then dropped into the cavity. The professor is most ably seconded by his first assistant, Dr. Hofmeir, who has already made a reputation as a clever operator. No drainage-tube was used. On the day previous I saw Dr. Schroeder amputate the cervix *very* high up, so high indeed that the operation was as severe as the supra-pubic measure would have been for carcinoma. At one of the clinics a student was asked what treatment he advised in the case of a woman who had a tumor of the wall of the uterus near the ovary, and another higher up. He answered, "Extirpation." The professor said that he could not have given a more faulty answer—that change of life would relieve her in time, and one should operate only when hæmorrhage is dangerous, or when the woman herself urges the operation, stating that unless it is done she will be unable to earn her living. He has had *three* deaths from the intra-uterine injection of corrosive sublimate. The last one was only one litre of a 1-1000 solution. He says that he cannot believe with the

Americans, that extirpation of the uterus is a needless and dangerous operation. He has had only 25 per cent. of deaths in his cases, and if we do not extirpate, the woman will die anyway. Dr. Landau has given some exceptionally interesting clinics. He limits the number of medical men, so that each one has every facility for examining the cases and forming a diagnosis. Several cases of uterine hæmorrhage, just such instances as come up every day in the routine of the general practitioner, have been treated with uterine injections of *strong* liq. ferri.

In 500 cases Dr. Landau has never had but one case of uterine colic, resulting from these injections, and that occurred a short time ago when I was present. The woman was bleeding from what proved to be a small piece of retained placenta. The womb was curetted and injected. The bleeding still continuing another injection was made, and this was followed by colic. It was very amenable to treatment. Dr. Landau took this occasion to say that there was never any danger in dilating the canal when the woman was narcotized. He never uses intra-uterine injections of *ice-water*, because the effect is only temporary. He has frequently used hot water, but prefers liq. ferri. Dr. Martin injects water almost boiling into the uterus and then takes a stitch through the cervix to keep it in. Many cases of dislocated uteri were treated, and Dr. Landau impressed upon those present that in cases of retroversion, the uterus should be pressed to one side so as to clear the promontory of the sacrum, before it was carried up. Otherwise restoration would be impossible. He showed one case of great interest. He had operated upon a woman some years before for floating kidney containing a large abscess. There is still a fistula in the side from which urine escapes. She urinates also through the natural passages. This case is cited in his brochure, "Die Wanderniere der Frauen," which is the best work I know of on floating kidney. Dr. Gusserow's case of ovariotomy died within twenty-four hours. He has operated for laceration of perinæum for procidentia with partial prolapse of bladder and prolapse of vaginal walls, and has done some interesting work in the lying-in wards. He had one case of a woman with cancroid uterus three months advanced in pregnancy.

Eye Diseases.—Prof. Dr. Hirschberg lives and has his private hospital at 36 Karl street, where he lectures, operates, receives dispensary cases, etc. His operative hours are between 9 and 10 A.M., and only a few invited students are ever present. His public lecture is from 12 to 1, and here he has cases illustrative of his address. The poli-klinik between 1 and 3, corresponds to the dispensary service in New York. His private hours are from 3 to 4. Prof. Sweigger has his poli-klinik in Ziegel street. Both are popular, both have hosts of students. Dr. Schoeler has also a poli-klinik and gives an operative course, as does also Dr. Hertsmann. Fraenkel gives an interesting *cursus* on the throat, and Leucæ on the ear. The latter lectures once a week, and is extremely practical and satisfactory.

Medicine.—Prof. Frerich's clinics in Charité are so crowded that one must go early to secure a seat. Virchow says that he never makes a mistake. He makes a diagnosis rapidly, and his lectures are of the greatest possible interest. On the subject of erysipelas he said that he had used injections of carbolic acid, but with no good results, and until we shall know more of the disease we must govern our treatment by symptomatology. *Interstitial Hypertrophy* of the liver he said was always due to one of four causes: 1. Alcohol. 2. Syphilis. 3. Malaria. 4. Transmitted inflammation from the gall bladder.

Prof. Leyden said in one of his lectures on diphtheria, that the treatment may be divided into three heads: 1. The internal antiphlogistic (quine sal. of sodium, etc). 2. The nourishing (wine, egg, alcohol and milk). 3. Specific (corrosive sublimate, chlorate of potash, carbolic acid, and iron). He classed dropsies under three heads: 1. Those due to congestion. 2. Those due to Bright's disease. 3. Those due to cachexiæ.

Skin Diseases.—Dr. Laisar has his private hospital and poli-Klinik on Karl street, 19. He has students from all parts of the world, and as he speaks English and is very jovial he has many disciples among Americans. He showed me a photograph of a case molluscum-fibronem of a carcinomatous nature. His treatment of scabies is as follows: He has several private bath-rooms, conveniently arranged for all kinds of treatment. A tub of water is charged with a small amount of corrosive sublimate. The patient is stripped, rests quietly in the bath for ten minutes, being careful to keep all parts of the body covered with water. The nurse then washes him all over with green soap, washes it off, and then goes through the same process again. Then the entire body is covered by a paint brush with a preparation of the oil of cade in alcohol. This is washed off as far as possible with green soap, when the patient gets out of the bath, and is thoroughly dried. Then the entire body is covered with an ointment of naphthol, sulphur, green soap, and simple ointment, and the patient is told to dress, and to wear the same underclothes until termination of treatment. The latter application is extremely painful, and its effects must be carefully watched.

General Medical News.—Dr. August König is lecturing upon the color sense, and the effect which the combustion of various metals has upon pigmented paper. Sodium and barium in a Bunsen burner were thoroughly tested. He gave the reflection of various media. At an angle of 50° water reflects about 50 per cent. of light, at an angle of 90° it only reflects 2 per centum. Glass reflects 60 per cent. at an angle of 5° and only 20 per cent. at an angle of 90°. Metal reflects from 60 to 90 per cent. at all angles.

Medical Societies. — At the meeting of the Medical Society on the evening of Nov. 12, Prof. Virchow was re-elected President, and Professors Küster, Fraenkel, Senator and Abraham were re-elected Secretaries. Dr. Falk was re-elected Librarian. The discussion on Diptheria being resumed, Prof. Virchow said that he thought the difference between croup and diphtheria was one of symptoms, and not of membrane. He doubted if physicians

could always tell, in any given case, whether it fell under the head of the former disease or of the latter. He thought that stripping off the membrane was bad practice.

OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—Held on Nov. 14, at the Woman's Hospital on Artillerie street, No. 13. Dr. Veit read a paper on "Tubal Pregnancy." Dr. Schröder, on "The Surgical Treatment of Pruritis Vulvæ," said that, of course, he did not intend urging it in every case. That when it depended upon irritating fluids or from parasites, operative interference was not demanded. But there were many cases which, if examined closely, would disclose little white swellings. If these are excised the pruritis disappears. He cited the following cases: 1. Upon close examination he found a small malignant growth of the clitoris. Surgical treatment cured the itching. Five years have now gone by, and the patient is still well. 2. Labia majora of left side hypertrophied. A part was excised, and the patient felt better. Shortly after the labia on the right side took on the same condition, and the same treatment was resorted to. The patient is now well. 3. Enlargement of labia minora; surgical treatment; cure. 4. Itching began at anus, extending up to mons veneris. The skin around the anus was thick and hardened from scratching. Small pieces were excised from around the anus, labia majora and mons veneris. The patient recovered entirely. H. R. B.

BERLIN, Nov. 13.

MR. EDITOR:—The Royal Frederick William University is in full operation for its winter semester, and has more students than in former years. Quite a little excitement has just been produced by the appointment of Prof. Schweiniger as "Director of the section of skin diseases at the Royal Charité." He is Prince Bismarck's "Leibarzt," and on account of services rendered the Prince, the departments of Dermatology and Syphilis, previously held by Prof. Levin, have been separated. Some six or seven hundred students assembled about the building where Prof. Schweiniger was to have his first lecture, but he admitted only fifty, and much excitement prevailed. N.

DOMESTIC CORRESPONDENCE.

OVARIOTOMY.

72 LAFAYETTE AVE., DETROIT, MICH., November 20, 1884.

TO THE EDITOR:

Dear Sir:—As a kind of a sequel to the letter which I sent you a few days ago, as well as to other articles to which that letter was related, I beg leave to submit the following condensed statement of "*facts and figures:*"

Between January 1 and October 31, 1884, (10 months) I performed exactly twelve ovariotomies. Of these, *seven* were performed in public amphitheatres, namely: *four* at Ann Arbor before at least 400 students and medical men, and *three* at Harper Hospital, in this city, before promiscuous gatherings of students and medical men. Of the four done at Ann Arbor *one* was a frail old lady of 68. The tumor weighed over forty-five pounds; there were many adhesions; the peritoneal cavity was open for fifty-five minutes; many ligatures were tied, and much sponging was required. She was dismissed cured in two weeks from the day of operation. *One* was a young, vigorous and hopeful patient, a married woman seven months pregnant. The great and rapidly increasing size of the tumor, from which she suffered intensely, demanded immediate operation. The operation was an easy and rapid one—the peritoneal wound was stitched up in less than fifteen minutes. Unfortunately, however, in spite of every possible precaution labor supervened within a few hours of the operation, and under the additional strain of the miscarriage the patient sank and died in about twenty-four hours. In this, as in all the cases, the anæsthetic was administered before the patient was carried to the amphitheatre. I am quite sure that in all your long list of readers, there is not more than one who is so destitute of reason as to suppose, or pretend to suppose, that the place and surroundings in which this operation was performed could or should be held responsible for the catastrophe.

When the patient awoke from the anæsthetic she found herself in a very quiet and comfortable private room, with which she was entirely satisfied, and where every attention was paid her and every precaution taken to ensure her safety.

The *third* was a large but uncomplicated tumor in a comparatively young and healthy woman. The peritoneal cavity was open less than eight minutes by the watch. She left for her home at Three Rivers two weeks from the date of operation.

The *fourth* was a case impossible to diagnose accurately before operation, and, in fact, pretty difficult to make out, even after the abdominal cavity was opened. The patient was a married woman, 24 years old, with a baby ten months old. But for her abdominal tumor, she was in very fair health.

The history of her tumor was very indefinite and unsatisfactory, but I must not dwell on that at this time. Suffice it to say here that I found the left kidney and both ovaries cystic, and I removed them, along with much of the omentum, which was adherent to the large cystic kidney. The operation lasted more than thirty minutes; many ligatures and much sponging were necessary. This patient is still in hospital, and is to all appearance completely convalescent, and in a few days will be *dismissed cured.* The three cases operated upon at Harper Hospital, Detroit, were done on June 24, July 3, and July 14, respectively. One of these was a very feeble lady, upwards of fifty years of age, who had been in delicate health for a number of years. Within three weeks after her operation she returned to her home in Rome, N. Y., cured, at least, of her ovarian disease. The other two were younger women, but both of them were very bad cases. My professional brethren who witnessed the operations unanimously declared that

they were such cases as an operator would be justified in refusing to interfere with. Both of them recovered, although one of them spent eight weeks in the hospital. In both of these cases, the peritoneal cavity was during the operation, flooded with cyst fluids. But over and above these seven cases operated upon in public amphitheatres, I have five to record which were done in "cottages by the wayside," or at least at the homes of the patients.

Of these two were done on Jan, 17, in the city of Kalamazoo. Of these two one was a very simple and favorable case in a young lady of eighteen. The other was a very different kind of a case. The patient was a married woman aged 44; her tumor was very large, multilocular and extensively adherent. The patient was greatly emaciated, her strength was nearly exhausted and her spirits entirely so; her feet and legs were much swollen, her digestive organs greatly debilitated and irritated, and she used morphia to the extent of eight to ten grains daily. Last but not least, her home and surroundings were just about the exact reverse of what they ought to have been from a surgical standpoint. Both of these cases recovered with most gratifying rapidity. Of the three remaining cases one was done Aug. 29, at Midland City; the patient was about sixty years old and rather frail, her tumor was large and growing rapidly. The operation was a long and tedious one, owing to the presence of a mass of adhesion which resembled an enormous diaphragm which bound the tumor to the right side of the abdominal as well as the pelvic wall. It was short, very thick and extremely vascular. I took the utmost pains to guard against hæmorrhage from this peculiar structure, but there seems reason to suspect that in this I was not entirely successful.

At any rate, for twenty-four hours all went well, temperature about normal; pulse 100. No pain and no nausea,—in short, no bad symptom of any kind; but at the end of that time rapid and painless sinking supervened and she died. No post-mortem could be had, and therefore the precise cause of death is matter of surmise. Her home was a very quiet and comfortable one, and she had every possible advantage in the way of nursing and medical attendance after her operation. Two of the dozen cases still remain to be described. Of these one occurred at the village of Otisville, Mich., Oct. 16.

This patient was a married woman sixty-three years old, who had been tapped several times. She was nearly worn out mentally as well as physically. Her lower extremities were much swollen. Her tumor was very large. It weighed nearly forty-five pounds and several of the largest cysts were filled with pus and other inflammatory products.

The peritoneal cavity was open for nearly an hour. I had not enjoyed the privilege of seeing this case before the day of operation, and then my time was limited to two hours. I have not seen her since, but have the authority of her medical attendant, Dr. J. B. Laing, of Otisville, that she is now in good health. As to the surroundings of this patient, I can sum the matter up in a word: *They were in all respects as unfavorable as it is possible to imagine.*

The last of this dozen cases occurred at Manchester, Mich., on Oct. 31. The patient was a married woman, æt. 39. She had been exposed to extreme hardships for a year or two, to which she attributed the inception of her tumor.

The latter had grown within a year. She had been tapped several times. She was nearly exhausted, but still hopeful and determined upon having an operation. I never saw this patient until the day of operation and I have not seen her since. When I did see her she was "*a sight to behold*," so great was her abdominal enlargement. She measured seventy-three inches in circumference and she was unable to stand on her feet, or to lie on her back, or to turn over in bed.

Her surroundings were in all respects, if possible, *worse* than those of the preceding case. To have removed her, however, to any better place was, by the time I saw her, a physical impossibility even if she could have been induced to consent, which I don't think she could. The tumor with its contained semi-solid material, together with the ascitic fluid present, weighed *one hundred and three pounds.* She made a perfect and rapid recovery.

To recapitulate: In the current year up to October 31, twelve women have petitioned me to relieve them of ovarian tumors, and to do so, I had to operate either in the public clinic or at their own homes. *In every case I have consented. I have refused no one.* Of these twelve cases, seven were done in public amphitheatres, with six recoveries and one death, while five were done in their own homes, with four recoveries and one death.

No doubt a more skillful operator might have saved these two patients. *Possibly* (*but in my opinion not probably*) more favorable surroundings might have made all the difference. If it had been in my power I would most gladly have availed myself of the advantages of an "ideal" hospital; not only so, but I would gladly have procured for these poor women the services of a more skillful and better equipped surgeon. Unfortunately, neither of these very desirable advantages were within the reach of my patients. I had no choice but to operate myself, and when I did. I did the best I could under the circumstances, and I succeeded in saving *ten out of twelve of them.* My conscience tells me that I did what was right in the premises, and my common sense tells me that no more cruel and cold-blooded doctrine has ever been promulgated in the name of science than the one which would have compelled me to say to these poor suffering women, "You must die in your misery, lest my rate of mortality as an ovariotomist might be increased."

Yours, etc.,

DONALD MACLEAN.

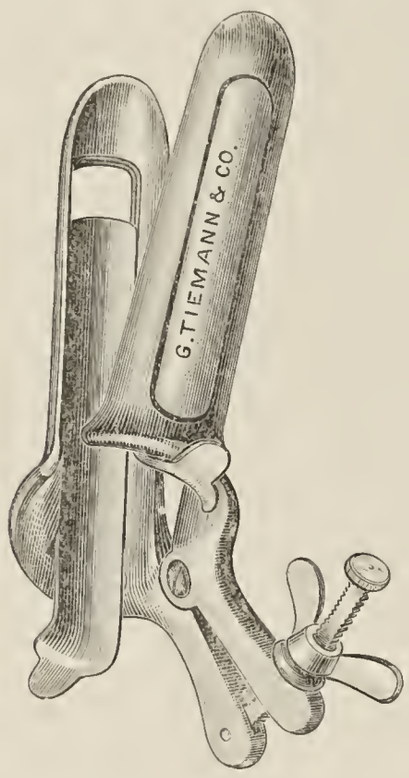
A NEW RECTAL SPECULUM.

BY O. ONEAL, M.D., WABASH, IND.

Finding the ordinary anal speculum so unsatisfactory, I have devised the one here represented, and which I find to admirably meet the objects I had in view. The blades are three and three-quarter inches

long, and can be dilated at the points by means of the screw. When closed, the instrument is round the entire length, the diameter at the outlet is one inch. Each blade has a slot three-fifths of an inch wide, and two and three-quarter inches long. These are closed by perfect fitting slides.

It is introduced closed, then by withdrawing one slide at a time the walls of the lower part of the rectum can be inspected. Wishing to examine higher up you can do so by means of the screw. This dilates the points of the blades, while the outlet



remains about the same. The advantage claimed for this speculum is that the smallest part of the mucous membrane can be exposed to the exclusion of all other parts. Wishing to operate upon a certain hæmorrhoidal tumor or an ulcer, the speculum is introduced so that one of the slides is directly over the tumor or ulcer, the slide is then withdrawn sufficiently to expose the part to be operated upon. All other parts are excluded.

In the injection of hæmorrhoids it is especially useful. After locating the tumor to be operated upon, the instrument is introduced with one slide over the part. Then slowly withdraw the slide until its end is about the centre of the tumor, and then introduce the hypodermic needle and inject the medicine. Then replace the slide and remove the speculum. The pain is much less than when they are injected while protruded and grasped by the sphincter.

The speculum is made and for sale by Tiemann & Co., New York.

BOOK REVIEWS.

TRANSACTIONS OF THE MICHIGAN STATE MEDICAL SOCIETY FOR THE YEAR 1884. Paper. 626 pages.

The proceedings of the Society present little that is of general interest. The following extracts are from the publications:

Dr. Donald Maclean has in several cases successfully treated Colle's fracture according to the following principles: 1. That Colle's fracture is always complicated with severe sprain of the wrist joint. 2. That the fracture in the great majority of cases is easily reduced by forced extension of the hand on the forearm, thereby relaxing the tense posterior aponeurosis, and permitting of the lower fragment being pushed down into its natural relation to the upper fragment. 3. That when once replaced there is little, if any, tendency to redisplacement of this fracture. 4. That mechanical restraints, such as splints, are unnecessary, and therefore should not be used. 5. That the evil results which tend to flow from a bad sprain of the wrist are the chief dangers to be provided for in the after treatment. 6. This is best accomplished by constant passive movements, frictions, etc. The reader credits the above to a monograph by Dr. L. S. Pilcher.

According to Dr. Charles G. Lundy the advantages offered by the dry treatment of chronic suppurative otitis media seem to be: 1. The constant medication of the parts. 2. The continuous disinfection of the parts, and the destruction of micro-organisms. 3. The absorption of the discharges. 4. Protection from atmospheric influences.

In cases of prostatic hypertrophy and urinary obstruction Dr. A. B. Palmer recommended dilatation by hydrostatic pressure. It is effected thus: The urethra is compressed between the thumb and finger of the patient near the glands. It is then filled with urine, and by straining as in an attempt to forcibly empty the bladder the distension of the urethra is produced.

The distending pressure, if daily repeated at an early period of obstruction, will overcome this form of stricture effectually and without irritation.

Dr. Charles Shepard reports two cases of congenital absence of vagina and uterus where the health of the patient was improved and she was enabled to marry by the production of an artificial vagina.

This was accomplished by an incision between the labia and the separation of the cellular tissue between the rectum and bladder to the depth of four inches.

This opening was kept from occlusion by the use of a sound which was worn for several weeks. After recovery from the operation there was found to be a monthly discharge from the mucous membrane of these cavities. C. E. W.

OSTEOTOMY AND OSTEOCLASIS FOR DEFORMITIES OF THE LOWER EXTREMITIES. By CHARLES T. POORE, M.D., Surgeon to St. Mary's Hospital for Children, New York, etc. New York: Appletons. 1884. Received from Jansen, McClurg & Co., Chicago. Pp. 187.

The need of established precepts is nowhere more felt at present than in the practice of the common operation of osteotomy. This book amounts to a treatise on the subject, and a full and complete one, though not as carefully compiled as could be desired.

The only other especial work on this subject in English with which it can be compared, is that of MacEwen, and to this it is much inferior in point of careful preparation and originality, but superior in being more recent. Some improvements which the author has devised in instruments and methods are of undoubted value, and he has been a constant worker in this field. The style of the work is forcible, because clear and exhaustive—nevertheless, it detracts from the merits of such a book to find in it minor blemishes and inaccuracies, of which a cursory reading will reveal a number.

As a sample of the unimportant but provoking inconsistencies which too often appear in carelessly written books, we quote two passages:

FROM P. 13.

"There was also at this time another revolution taking place in surgical practice, which has contributed more to its advance within the last ten years than any one circumstance, and this was the method of the treatment of wounds advocated by Mr. Lister. * * *

"That osteotomy has obtained its place as a safe and justifiable procedure, is due to the influence of Listerism."

FROM P. 19.

"With regard to Listerism, I am clearly of the opinion that it affords no additional safety, and I have long since abandoned it."

With the author's mental keenness, he could doubtless harmonize satisfactorily these two seemingly discordant opinions; but we submit that it is unkind to expect this of the average reader's intellect, for he omits to inform us at what stage of development the operator acquires such marvelous skill that he becomes independent of a method of procedure which only a short time before was the sole cause "that osteotomy had obtained its place as a safe and *justifiable* procedure." Herein lies a great mystery.

E. W. A.

Transactions of the Texas State Medical Association. Sixteenth Annual Session. Paper. Pp. 246.

The majority of the papers contributed to this publication are short and practical.

Dr. R. P. Talley has found the hypodermic use of bimuriate of quinine and urea very beneficial, particularly in pernicious malarial fever. To avoid abscess he injects deeply, slowly emptying the syringe as the needle is withdrawn.

Dr. C. W. Trueheart reports an interesting case of the "reproduction of two and three-quarter inches of the clavicle in the human subject by grafting with periosteum and with thin laminæ of bone covered by its periosteum, taken from the dog."

One gentleman is considerably astonished at finding pediculi on the eyelids. This is a frequent source of wonder to careless students, and they are generally considerably disgusted when they find that this species is their old acquaintance Pediculus pubis.

C. E. W.

MISCELLANEOUS.

COMMITTEE ON ORGANIZATION OF THE NINTH INTERNATIONAL MEDICAL CONGRESS, TO BE HELD IN WASHINGTON, D. C., IN 1887.

PRELIMINARY NOTICE.

The Committee on Organization of the Ninth International Medical Congresss, to be held in the United States in 1877, met in Washington, D. C., on November 29, 1884, for the determination of the general plan of the Congress, the election of Officers of the Committee, who will be nominated to fill the same offices in the Congress, and the consideration of questions of finance.

The following rules were adopted:

1. The Congress will be composed of members of the regular medical profession who shall have inscribed their names on the Register of the Congress, and shall have taken out their tickets of admission. As regards foreign members, the above conditions are the only ones which it seems, at present, expedient to impose.

The American members of the Congress shall be appointed by the American Medical Association, by regularly organized State and local medical societies, and also by such general organizations relating to special departments and purposes, as the American Academy of Medicine, the American Surgical Association, the American Gynæcological, Ophthalmological, Otological, Laryngological, Neurological, and Dermatological Societies, and the American Public Health Association; each of the foregoing Societies being entitled to appoint one delegate for every ten of their membership.

The members of all special and subordinate Committees, appointed by the General Committee, shall also be entitled to membership in the Congress, together with such other persons as may be specially designated by the Executive Committee.

All Societies entitled to representation are requested to elect their Delegates at their last regular meeting preceding the meeting of the Congress, and to furnish the Secretary-General with a certified list of the Delegates so appointed.

2. The work of the Congress is divided into eighteen Sections, as follows, viz:

1. Medical Education, Legislation and Registration, including methods of teaching and buildings, apparatus, etc., connected therewith.
2. Anatomy.
3. Physiology.
4. Pathology.
5. Medicine.
6. Surgery.
7. Obstetrics.
8. Gynæcology.
9. Ophthalmology.
10. Otology.
11. Dermatology and Syphilis.
12. Nervous Diseases and Psychiatry.
13. Laryngology.
14. Public and International Hygiene.
15. Collective Investigation, Nomenclature, and Vital Statistics.
16. Military and Naval Surgery and Medicine.
17. Experimental Therapeutics and Pharmacology.
18. Diseases of Children.

3. The General Meetings will be reserved for the transaction of the general business of the Congress

and for addresses or communications of scientific interest more general than those given in the Sections.

4. Questions which have been agreed upon for discussion in the Sections shall be introduced by members previously nominated by the Officers of the Section. The members who open discussions shall present a statement of the conclusions which they have formed as a basis for debate.

5. Notices of papers to be read in any one of the Sections, together with abstracts of the same, must be sent to the Secretary of that Section before April 30, 1887. These abstracts will be regarded as strictly confidential communications, and will not be published until the meeting of the Congress. Papers relating to questions not included in the list of subjects suggested by the Officers of the various Sections will be received. Any member, after April 30, wishing to bring forward a subject not upon the programme, must give notice of his intention to the Secretary-General at least twenty-one days before the opening of the Congress. The Officers of each Section shall decide as to the acceptance of any communication offered to their Section, and shall fix the time of its presentation. No communication will be received which has been already published or read before a Society.

6. All addresses and papers, read either at General Meetings or in the Sections, are to be immediately handed to the Secretaries. The Executive Committee, after the conclusion of the Congress, shall proceed with the publication of the Transactions, and shall have full power to decide which papers shall be published, and whether in whole or in part.

7. The official languages are English, French and German.

No speaker shall be allowed more than ten minutes, with the exception of readers of papers and those who introduce debates, who may occupy twenty minutes.

8. The Rules, Programmes, and Abstracts of Papers will be published in English, French, and German.

Each paper or address will appear in the Transactions in the language in which it was delivered by the author. The debates will be printed in English.

9. The Officers of the General Committee on Organization are a President, three (3) Vice-Presidents, a Secretary-General, and a Treasurer, and those elected to these positions will be nominated by the General Committee to hold the same offices in the Congress. All vacancies in these offices shall be filled by election.

10. There shall be an Executive Committee, to be composed of the President, Secretary-General, and Treasurer of the General Committee, and of four other members to be elected by the General Committee. The duties of the Executive Committee shall be to carry out the directions of the General Committee; to authorize such expenditures as may be necessary, and to act for the General Committee during the intervals of its sessions, reporting such action at the next meeting of the General Committee.

11. There shall be a Standing Committee on Finance, composed of five members, to be appointed by the President, subject to the approval of the Executive Committee.

12. Those who are elected as Chairmen of the several Sections shall be thereby constituted members of the General Committee.

The Officers elected are as follows:

President.—Dr. Austin Flint, Sr., of New York.

Vice-Presidents.—Dr. Alfred Stillé, of Philadelphia; Dr. Henry I. Bowditch, of Boston; Dr. R. P. Howard, of Montreal, Canada.

Secretary-General. — Dr. J. S. Billings, U. S. Army.

Treasurer.—Dr. J. M. Browne, U. S. Navy.

Members of the Executive Committee (in addition to the President, Secretary-General, and Treasurer). —Dr. I. Minis Hays, of Philadelphia; Dr. A. Jacobi, of New York; Dr. Christopher Johnston, of Baltimore; Dr. S. C. Busey, of Washington.

The Executive Committee will proceed at once to complete the work of organization.

J. S. BILLINGS,
Secretary-General.

WASHINGTON, D. C., *Dec* 1, 1884.

OFFICIAL NOTICE.

ANNUAL DUES from members of the Association—*Five Dollars* per annum—are payable directly to the Treasurer. Such payment entitles them to receive the JOURNAL of the Association for one year.

SUBSCRIPTIONS TO THE JOURNAL from those who are not members should be forwarded to the office of publiication, Chicago.

BACK VOLUMES OF THE TRANSACTIONS may be procured, at reduced rates, by addressing the Treasurer.

THE INDEX to the 33 Volumes of Transactions will be forwarded, postpaid, on receipt of *One Dollar* by the Treasurer.

According to a resolution passed May 9, 1884, at the Washington meeting, continuous payment of Annual Dues is required. to retain permanent membership.

RICHARD J. DUNGLISON, M.D.,
Treasurer.

Lock Box 1274, Philadelphia, Pa.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM NOVEMBER 29, 1884, TO DECEMBER 5, 1884.

Gray, Chas. C., Major and Surgeon, (retired) died at Geneva, N. Y., Nov. 26, 1884.)

Kneedles. Wm. L., First Lieutenant and Assistant-Surgeon, relieved from duty at Ft. A. Lincoln, D. T., and ordered to Camp Poplar River, M. T. (S. O. 140, Dept. Dak., Nov. 25, 1884.)

Pilcher, Jas. E., First Lieutenant and Assistant-Surgeon, to be relieved from duty at Camp Poplar River, M. T., and ordered to Ft. A. Lincoln, D. T. (S. O. 140, Dept. Dak. Nov. 25, 1884.)

McCaw, W. D., First Lieutenant and Assistant-Surgeon, relieved from duty at Ft. Wingate, N. M., and ordered to Ft. Lyon, Col. (S. O. 228, Dept. Mo, Nov. 26, 1884.)

THE

Journal of the American Medical Association.

EDITED FOR THE ASSOCIATION BY N. S. DAVIS.

PUBLISHED WEEKLY.

VOL. III. CHICAGO, DECEMBER 20, 1884. NO. 25.

ORIGINAL ARTICLES.

RETARDATION OF THE PULSE IN MITRAL INSUFFICIENCY.

BY A. T. KEYT, M.D., CINCINNATI, O.

Read in the Section of Practice of Medicine and Materia Medica of American Medical Association, May, 1884.

At the meeting of the Association last year, I read before this section a paper on Diminution of the Retardation of the Pulse in Aortic Insufficiency, in which were considered the reality, mechanism and diagnostic value of the phenomenon. In the present paper I wish to present the subject of augmentation of the retardation of the pulse in mitral insufficiency.

This subject in its inception and literature seems to be peculiarly my own. For although none would question the importance of a new diagnostic sign of a lesion so common and grave as mitral insufficiency, and whose diagnosis by means of the old signs is not always infallible; and although I presented to the profession some years ago demonstrations of this phenomenon of mitral regurgitation which to me were conclusive, the announcement has attracted but little attention; my observations have neither been confirmed nor disproved by others, and two writers only have noticed them. Dr. A. B. Isham, in presenting the value of the graphic method from the point of view of examinations for life insurance, accepts abnormal delay of the pulse as a valuable sign of mitral regurgitation.[1] And M. Pélix, in his inaugural thesis on retardation of the pulse, quotes largely and approvingly from my published reports[2]. These papers and my own contain all that has been contributed upon the subject.

Convinced myself of the truth and intrinsic value of the observation, and desiring to see the fact accepted and utilized, I have prepared this article, hoping that a new presentation of the subject may lead to new interest in the phenomenon, and stimulate personal investigation of the time-relation between the heart and pulse in real or suspected mitral insufficiency.

[1] *American Journal of the Medical Sciences*, July, 1882, p. 119.
[2] Paris, 1882.

Evidences of the reality of the phenomenon are drawn, 1, from a consideration of the mechanism of mitral insufficiency; 2, from experiments on the schema; 3, from experimental observations on man.

Examining the question first from the point of view of the mechanism of mitral insufficiency we shall find a convincing *a priori* argument in favor of abnormal delay of the pulse as a direct effect of this lesion. Under normal conditions with mitral valve intact, the heart is a perfect organic pump, the left ventricle alternately and duly receiving and sending out blood. When the ventricle contracts, the pressure within becomes positive in relation to the arterial and auricular, which insures the prompt closure of the auriculo-ventricular valve and immediately thereupon the opening of the aortic valves and escape of blood into the aorta.

When the ventricle relaxes, the pressure becomes negative with respect to the arterial and auricular, and the blood flows freely in from the auricle, but is prevented doing so from the artery by closure of the semilunar valves. Auricular systole raises somewhat the diastolic intra-ventricular pressure, but the moment of beginning systole finds a considerable excess of pressure on the side of the artery. The time required to overcome this excess after the beginning of ventricular systole measures the duration of the ventriculo-aortic or presphygmic interval, which under the normal conditions will give a normal value.

Thus all goes smoothly on; the rhythmic succession of contraction and relaxation, of valvular opening and closure, of inflow and outflow of blood, and all the events of a cardiac cycle in harmony with each other in time and status and movement.

But when the mitral valve is permanently open the harmony is no longer preserved. The ventricle fills in diastole even more promptly and completely than in normal conditions, in consequence of falling into it of blood from the surcharged auricle; but in systole the blood is first sent backwards through the open valve into the relaxed auricle. This process fills the auricle and pulmonary veins and dams back the blood towards the lungs. The retrograde current, however, is soon arrested by meeting the direct current from the right ventricle, whose systole is synchronous with the left, and whose tricuspid valve is intact. Thus the pressure within the left ventricle and auricle (now one cavity) finally becomes positive with respect to the aortic pressure, and for the remaining part of the systole blood escapes into the aorta. From this it follows that the time and work of each

systole is consumed in first driving the blood backwards, and only a part of the systole is effective in driving the blood into the general arterial system. The effect of this condition of things upon the arterial pulse is to postpone the time of its appearance and lessen the volume of its wave; the cardiac systolic portion is shortened relatively to the length of the cardiac systole. If the heart maintain its vigor the pulse may still feel sharp to the fingers and its sphygmogram give a steep ascent and pointed summit; yet it quickly vanishes to the fingers, and, as shown in the trace, it lacks duration, as compared with the duration of the systole which has sent it forth. If the heart passes into irregular action there will be systoles without arterial pulsation, and pulsations presenting a great variety in form and in time. The many and grave ulterior pathological sequences I will not follow, as the immediate mechanism is all that concerns the present study.

If the above sketch of the mechanism of mitral insufficiency be truly drawn, the conclusion inevitably follows that abnormal delay of the pulse is an essential phenomenon of the lesion.

EXPERIMENTS ON THE SCHEMA IN ILLUSTRATION AND EVIDENCE.

Passing next to the results of experiment, I will first offer those obtained with the schema. It is well known that the mechanical action of the circulation can be well imitated by means of a good working schema. With such a device connected with the transmission tubes of an apparatus for simultaneous inscriptions, traces were obtained at the same time from the interior of the ventricle and interior of the aorta. The intra-ventricular pressure in diastole was maintained at 4 inches, and the intra-aortic at 20 inches (water manometer). The ventricle was compressed and decompressed in a uniform manner for all the experiments. The conditions were varied only with respect to the mitral valve. The instant of ventricular impulsion and that of the aortic wave were signaled by the ascents of the traces, and the time-difference between these ascents was easily computed by the accompanying chronogram. Experiments were first made with the mitral valve intact, representing normal conditions. Fig. 1 is a fair example of the results. Delay of the aortic wave, $^1/_{16}$ second.

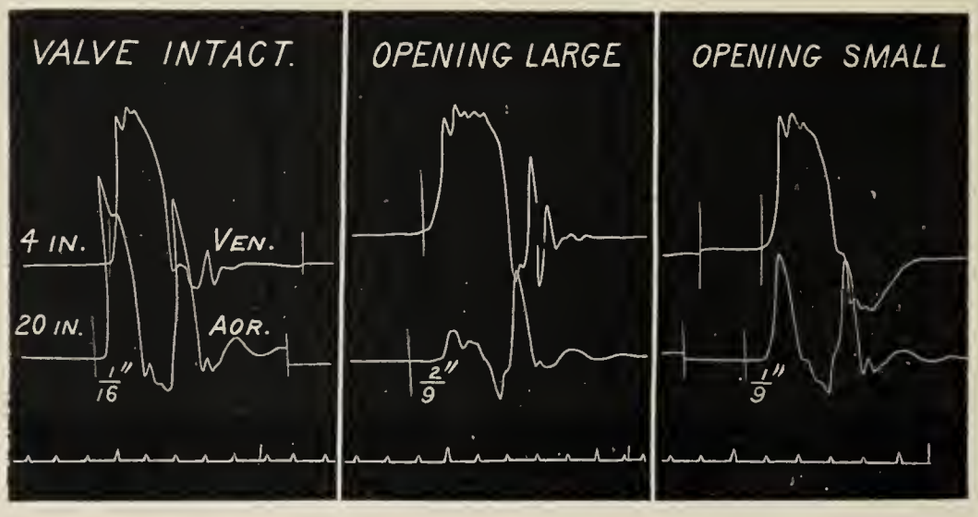


Fig. 1.

Fig. 2.

Fig. 3.

Another series of experiments was made with a large mitral opening, of which Fig. 2 shows an average result. Aortic delay, $^2/_9$ second—more than three times as long as the result with intact valve.

A third series of experiments was made with a comparatively small mitral opening, with result shown in Fig. 3. Aortic delay, $^1/_9$ second, which is seen to be intermediate between the other two.

These results well illustrate the retarding effect of mitral insufficiency on the time of the pulse wave, and the additional significant fact that the retardation is in proportion to the size of the mitral opening. Indeed, in view of the careful manner in which the apparatus was prepared and the experiments conducted, together with the analogy in all essential points for our purpose between the schema and heart, these results may be admitted, also, as veritable demonstrations of the phenomenon and phases under consideration.

EXPERIMENTS ON MAN.

The subject remains to be further elucidated by the results of experimental observations on man.

In order to appreciate chronometric discrepancies between the heart and pulse, it is essential that the normal cardio-arterial time-relations should be well established. This has been done. The interval between the beginning of ventricular systole and the carotid pulse has been found, after a great many observations and measurements, to average about $^1/_{12}$ second with pulse-rate at 72. The normal range of variation with this pulse-rate may be placed between $^1/_{11}$ and $^1/_{13}$ second. It has been determined that the interval bears a relation to the pulse-rate, so that a frequency of 120 would give an interval perhaps not more than half as long as a frequency of 60 per minute. Also investigations have shown that the causes of the variations with the pulse-rate are changes in the mode of ventricular systole and variations of the arterial blood-pressure relative to the ventricular. In frequent pulsations, the systoles being quicker and the arterial pressure relatively lower, the cardio-carotid interval would be correspondingly shortened. The rule is this, the cardio-carotid interval for a pulse frequency between 60 and

120 varies inversely with the pulse-rate; so in estimating what would be a normal interval in a given case the rate of the pulse must always be taken into account.

The interval between the heart and more distant arterial points, as the radial, femoral, or posterior tibial is complicated by the element of transmission time of the pulse wave, which is also subject to variations; but the transmission interval between the aortic orifice and carotid point is so short compared with the whole cardio-carotid interval, as measured, that its variations are not appreciably apparent. Hence the importance of choosing the carotid or subclavian for observing the cardio-arterial time-interval.

The cardio-carotid interval, then, is practically the presphygmic or time elapsing between the beginning of ventricular contraction and opening of the aortic valves, and variations of delay of the carotid pulse are virtually variations in the length of the presphygmic interval.

With these data concerning the physiological duration and variations of the cardio-carotid interval we are prepared to signal and appreciate the changes effected by conditions of disease.

Our immediate study concerns delay of the pulse in mitral insufficiency. The only clinical data we possess relating to this point have been furnished by my own researches.

My first observation was made in July, 1877, on a boy, aged 9 years, who suffered from mitral insufficiency, and subsequently dying, a post-mortem revealed in his case a pure mitral regurgitant lesion without any other valvular change. His pulse at the time of observation was 100 per minute. Simultaneous traces of his heart and carotid gave an interval of $^{2}/_{17}$ second, when about $^{1}/_{17}$ second would have been his normal interval with his pulse-rate. Also simultaneous traces of his heart and radial gave an interval of a little less than $^{1}/_{5}$ second; and the same of the heart and posterior tibial a little more than $^{1}/_{4}$ second; both the latter also abnormally long. These results are shown in figure 4.

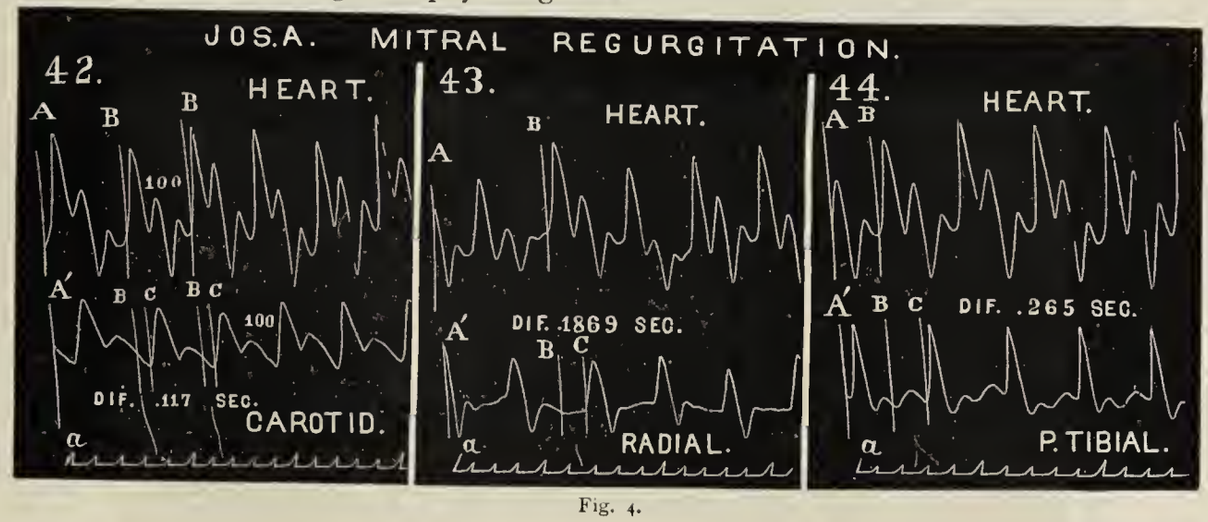


Fig. 4.

Soon after this case I traced another; a young man aged 20 years who presented all the diagnostic signs of mitral insufficiency. Simultaneous traces were had of his heart and radial which gave an interval of $^{2}/_{9}$ second with pulse-rate at 80. If we deduct from this interval $^{1}/_{11}$ second, as an average carotid-radial transmission time, we get a value between $^{1}/_{6}$ and $^{1}/_{7}$ second as the approximate cardio-carotid interval in this case. The normal interval with pulse at 80 would be near $^{1}/_{13}$ second. Traces shown in figure 5.

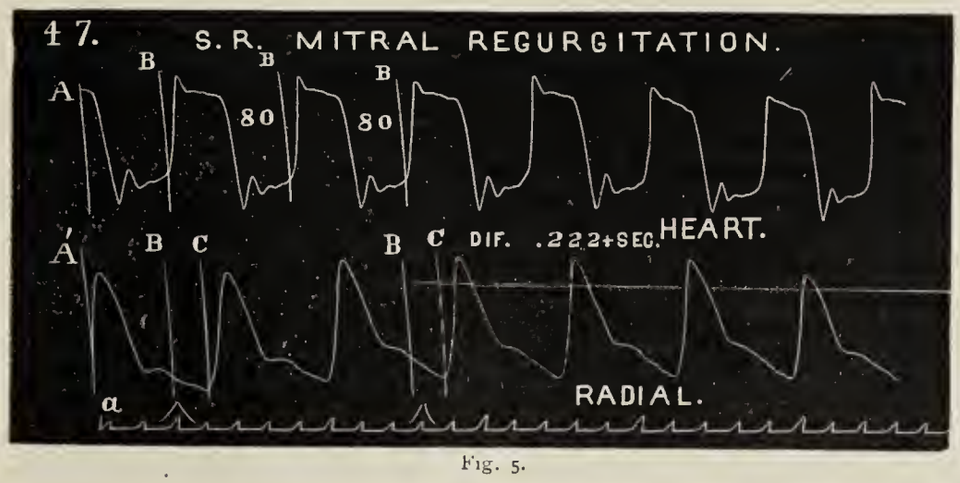


Fig. 5.

Observations from these two cases formed the basis of a paper which was published in the Cincinnati *Lancet and Clinic*, March 22, 1879. Since these cases I have continued my observations with results which only multiply the demonstrations of the fact that the pulse is abnormally delayed in mitral regurgitation. But as demonstrations are more conclusive than mere statements of results, the simul-

taneous cardio-arterial traces (with accompanying chronogram in fifths of seconds), from a number of patients presenting diagnostic signs of mitral regurgitant lesion are here produced.

The cardio-arterial intervals in all these cases of mitral insufficiency are abnormally great; greater than those obtained from persons in health, or from those affected with any process of disease which does not involve pulse-retarding lesion of the heart or aorta. In the absence of such lesion, no series of cases with corresponding pulse frequencies can be produced which will show such an amount of pulse-retardation.

Figures 6 and 7 are from Jennie M., aged 11 years. She had suffered with chorea and recurring rheumatism, and her heart had become seriously affected. It was enlarged, and emitted a loud murmur, which was distinguished as mitral regurgitant. Fig. 6 was taken during an acute attack, in the presence of fever, pulse-rate 140. Fig 7 was taken after subsidence of acute symptoms, pulse-rate 114.

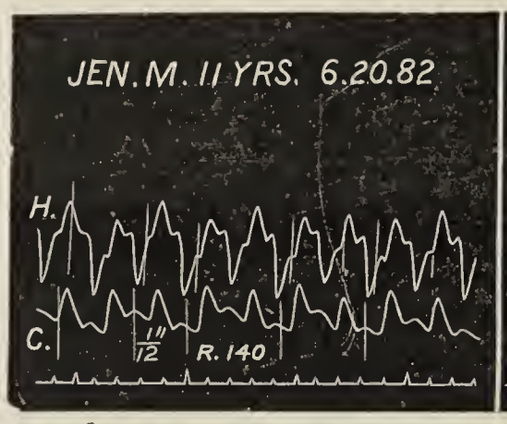


Fig. 6.

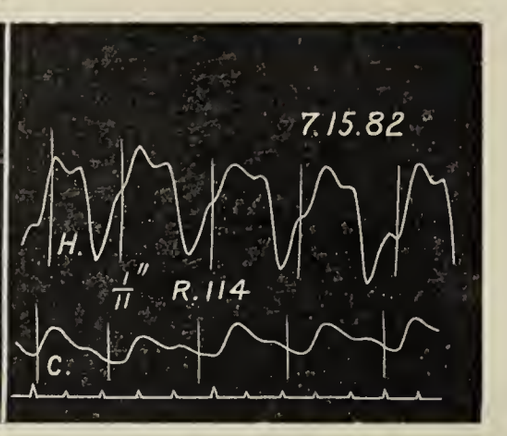


Fig. 7.

Some months subsequently the girl experienced a new attack, with grave cardiac implication, under which she died. The post-mortem revealed pericarditis old and new, with adhesions and liquid effusion; general enlargement of the heart, especially hypertrophy of the right side; notable insufficiency of the mitral valve, the result of inflammatory thickening and contraction; the other valves normal.

Fig. 8 is from Mary M., next younger sister of Jennie, also aged 11 years at the time of observation. She became affected with chorea and sub-acute rheumatic symptoms, and when first seen her heart was notably enlarged, and there was present a distinct apex systolic murmur. She had slight fever, pulse-rate 114. Carotid delay shows $^1/_{10}$ second against $^1/_{19}$ which would be about her normal interval.

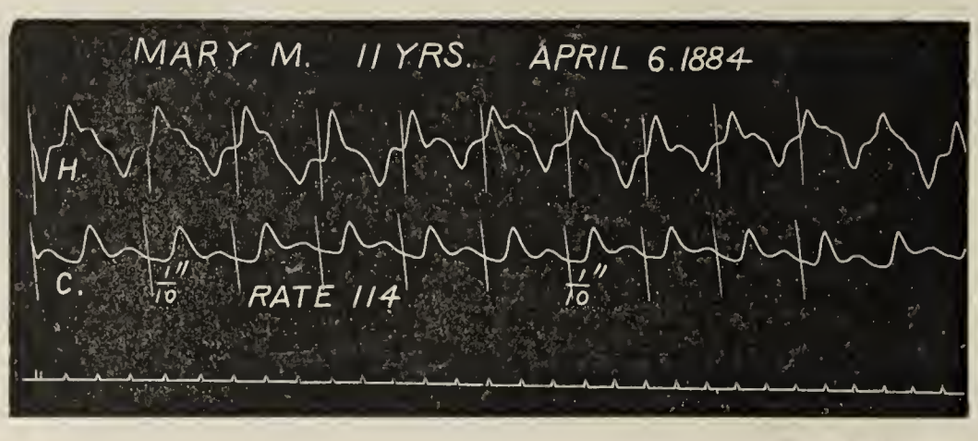


Fig. 8.

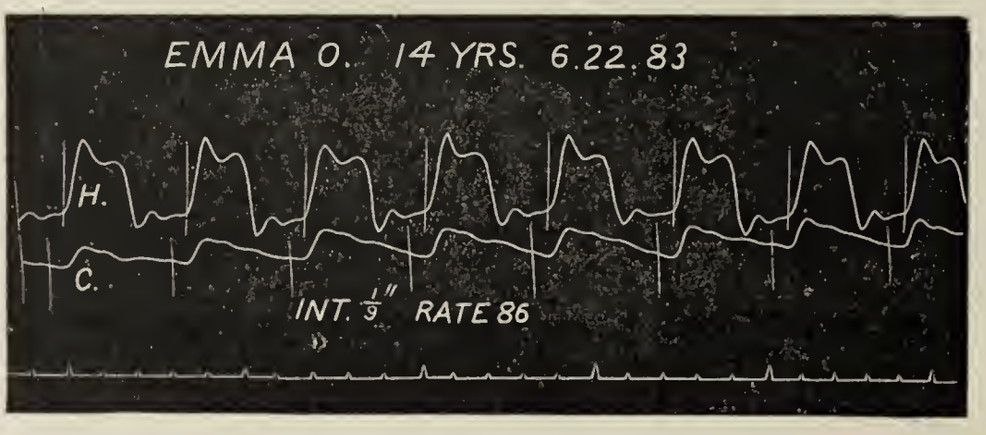


Fig. 9.

Fig. 9 is from Emma O., who presented an apex systolic murmür, which supervened during an attack of scarlet fever, and persisted after recovery from that disease. At the time of observation, June 22, 1883, the murmur and pulse delay were the only indications of cardiac lesion. She remains well to the present time.

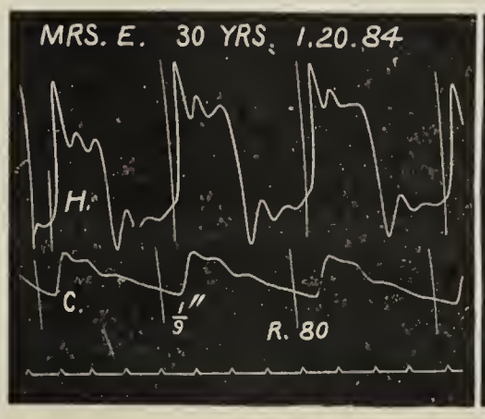


Fig. 10.

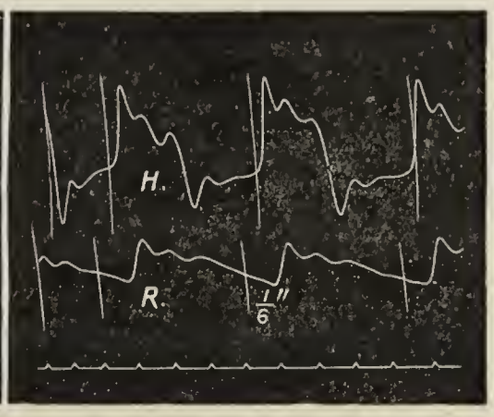


Fig 11

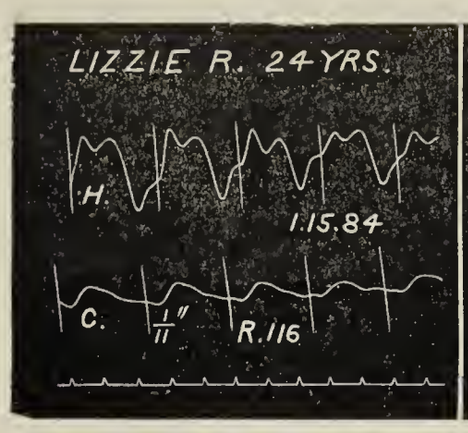


Fig. 12.

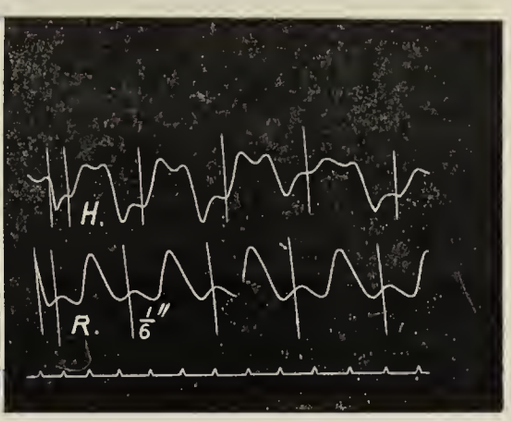


Fig. 13.

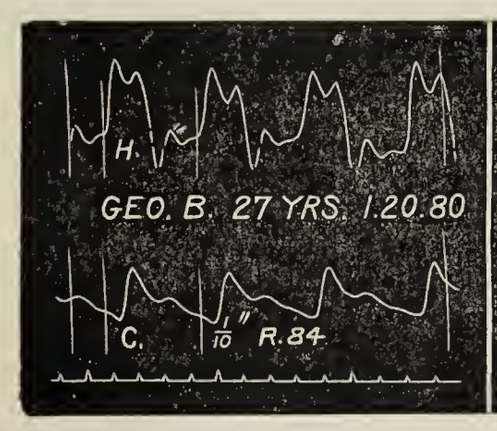


Fig. 14.

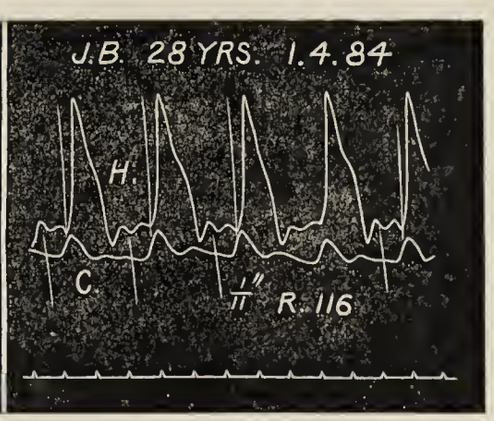


Fig. 15.

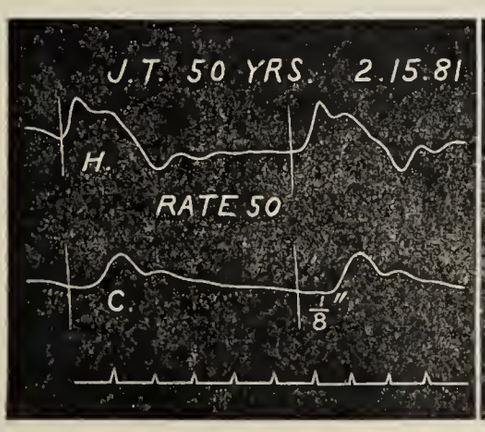


Fig. 16.

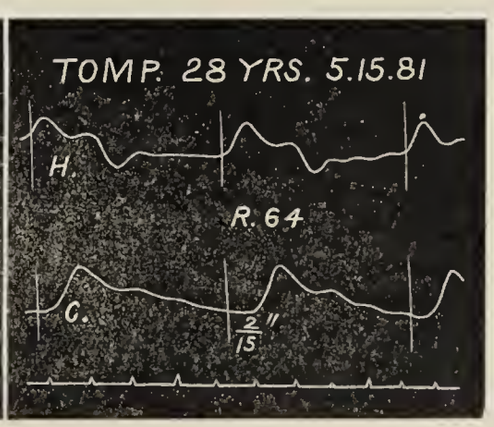


Fig. 17.



Fig. 18.

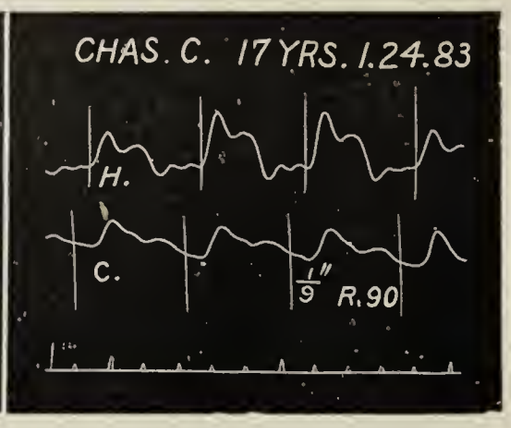


Fig. 19.

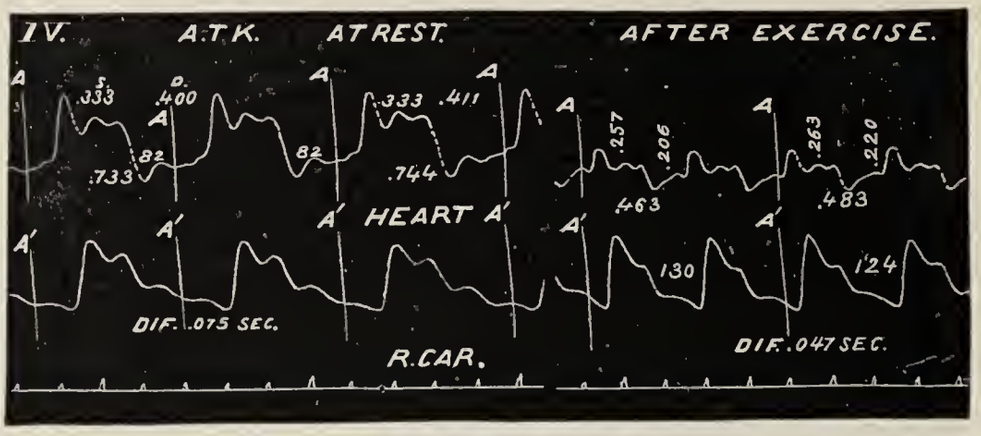


Fig. 20.

Figures 10 and 11 are from Mrs. E., aged 30 years. She was taken with præcordial soreness and a dry, hacking cough, and, when seen a few days afterwards, betrayed a marked apex systolic murmur. Tracings show the cardiac-carotid interval to be $^1/_9$ second with pulse-rate at 80, and the cardio-radial interval to be $^1/_6$ second.

Figures 12 and 13 are from Lizzie R., aged 24 years, hospital case, presenting apex systolic murmur. Delay as shown.

Fig. 14 is from Geo. B., aged 27 years, presenting apex systolic murmur. Delay as shown.

Fig. 15 is from J. B., aged 28 years, hospital case, with diagnosis of mitral regurgitation and cardiac hypertrophy. At the time the traces were taken he was under a febrile paroxysm. Indications and delay as shown.

Fig. 16 is from J. T., aged 50 years, a hospital patient, with cardiac enlargement and apex systolic murmur. Pulse delay and pulse-rate as shown.

Fig. 17 is from Sam. T., aged 28 years, who presented the signs of mitral insufficiency.

Fig. 18 is from J. C., a hospital case, with well-marked signs and symptoms of cardiac hypertrophy and mitral regurgitation.

Fig. 19 is from Chas C., aged 18 years, with indications of mitral insufficiency.

Fig. 20 is from a man in health, aged 54 years. The first traces were taken when the circulation was quiet, pulse 82; the second traces when the circulation was accelerated as consequence of exercise, pulse 130. In this figure the pulse delay represents the normal amount. It measures, in fractions, a little less than $^1/_{13}$ second, with pulse at 82, and a little less than $^1/_{21}$ second with pulse at 130.

Having thus shown that the mechanism of mitral insufficiency includes increased delay of the pulse as one of its essential phenomena, and demonstrated the constant relationship between the lesion and phenomenon, both on the schema and man, I submit the proposition as proven, and the fact as true beyond a doubt.

DIAGNOSTIC VALUE.

In undue retardation of the arterial pulse on the systole of the ventricle we have a special and highly diagnostic sign in mitral insufficiency. In this lesion, when pure and effective, the sign is always present, and fails to manifest only when the lesion is so slight as to cause no functional disturbance, or when complicated with large insufficiency of the aortic valves. In the condition of harmless regurgitation through the mitral valve the retardation of the pulse remains normal, because the conditions are virtually normal; in the complication stated the retardation is abnormally diminished, for the reason that the aorta ventricle and auricle are as one cavity, with blood-pressure in equilibrium at the end of ventricular diastole, and the beginning of systole starts a current forwards into the artery as well as backwards into the auricle. Thus in mitral, complicated with free aortic insufficiency, instead of abnormal delay, there is abnormal precipitation of the pulse. These are the only exceptions to the rule, that the sign is present when the lesion is present.

What other conditions besides the prime one considered are capable of determining undue retardation

of the pulse? Slowness of ventricular contraction, and relatively high arterial pressure are known causes of prolongation of the presphygmic interval, but these causes are considered to produce only the normal extreme of prolongation.

1. There are good reasons to believe that mitral stenosis independent of insufficiency is capable of causing a delay which may exceed the normal limits. The mechanism, and experiments on the schema favor this view; besides, not long since I traced a case presenting the presystolic murmur and other clinical features of pure mitral stenosis and found the cardio-carotid interval unduly long. If this fact should become established, (of which I have no doubt) it will be found that the delay, unless in extreme narrowing, will not be as great as in mitral regurgitation, and that the sign will not manifest at all in moderate or even considerable contraction, for it would require a very small opening to prevent the ventricle from duly filling during diastole, which would be requisite to insure the production of the sign. Even admitting the fact of the relationship, the sign can have nothing like the diagnostic significance in mitral constriction that it has in mitral regurgitation.

(2.) Rarely, increased delay may be produced by a "locking" of pathologically changed aortic valves. This condition is uncommon, but may obtain when the valves are stiff and thickened, and, notably, when loaded with calcareous masses. They close with a species of locking and are forced open only after a prolonged effort of the ventricle.

(3.) It has been well established that an intervening thin-walled distensible aneurism of the ascending aorta may cause increased delay of the distal pulse, but that if the aneurism have resisting walls, even though it be large, there is no increased delay. Evidently, if the pulse could be traced on the proximal side of the pouch, which is impracticable in man, the delay would not obtain.

The conditions have now all been named in which there is a possibility of undue delay of the pulse being produced by other causes than mitral insufficiency. With the latter all are serious organic lesions of which abnormal delay of the pulse may be a common product.

The sign then, although always present in pure, effectual mitral insufficiency, is not of itself pathognomonic of this lesion, since it may be present, also, in other organic conditions. Here the stethoscope comes beautifully to the aid of the graphic instrument, and in the union of the apex systolic murmur of the one and the pulse-delay of the other, our diagnosis is perfected.

The graphic sign comparea with apex systolic murmur.—Systolic murmur located at the left apex, is the physical sign above all upon which turns the diagnosis of mitral insufficiency. Yet all know there may be free regurgitation without murmur, and insignificant harmless regurgitation with loud murmur, and that no direct relation subsists between the amount of regurgitation and the intensity of this auscultatory sign. Also is it well-known that apex systolic murmur may be distinctly present and the mitral valve be functionally perfect. These points do not compare altogether favorably with the point we have stated as true concerning the graphic signs The comparison is well shown by apposition.

Abnormal pulse delay.	*Apex systolic murmur.*
Always present in pure, harmful, mitral regurgitation.	Sometimes absent in very free regurgitation.
Always absent in harmless regurgitation.	Usually present and often very loud in harmless regurgitation.
The amount of delay directly proportional to the amount of regurgitation.	No certainty that the intensity of the murmur is directly proportional to the amount of the regurgitation, but often it is inversely so.
Present in other conditions besides mitral regurgitation, but these are organic and serious.	Present in other conditions besides mitral regurgitation, but these, if organic, are harmless.

Although the graphic sign has greatly the advantage in the comparison, its value and utility are most manifest when it is obtained and considered in connection with the auscultatory. Alone it is not competent to declare the presence of the lesion, but in association with systolic murmur at the left apex it speaks with positive import. Neither sign singly is conclusive of the lesion, but the two combined could be produced by no other. One locates the lesion, the other determines the extent of its damage.

An important point is that the diagnosis as made by the aid of the graphic sign is certain and immediate at any stage of the case, while the diagnosis as made by all other indications, exclusive of this, is not certain until confirmed by the development of pathological sequences. When, as often happens, other signs raise the question of the existence or not of harmful regurgitation, the graphic comes in with its prompt and positive decision.

RÉSUMÉ OF CONCLUSIONS.

1. Abnormal retardation of the arterial pulse, notably the carotid, on the systole of the ventricle is a real phenomenon of mitral insufficiency.

2. It is present in all cases of pure, harmful, mitral insufficiency, and is absent only in insignificant, harmless, regurgitation, or in regurgitation complicated with aortic insufficiency.

3. It measures by the amount of retardation the amount of the regurgitation.

4. It may be present in two other conditions, probably a third, all organic; hence this sign, notwithstanding its positive value, is not of itself pathognomonic.

5. In conjunction with apex systolic murmur its presence is conclusive of mitral insufficiency.

6. Compared with apex systolic murmur, this sign is more positive and appreciative, and distinguishes, which the latter does not, between harmful regurgitation and harmless conditions.

7. By the aid of this sign a positive diagnosis ma be made at once in any stage of the case, and without waiting for the development of sequences and symptoms.

AMPUTATION AT THE HIP JOINT, WITH A REVIEW OF THE VARIOUS METHODS OF CONTROLLING HÆMORRHAGE.

BY C. A. WHEATON, M.D., ST. PAUL, MINN.

Read in the Section of Surgery and Anatomy of the American Medical Association, May, 1884.

MR. CHAIRMAN AND GENTLEMEN OF THE SURGICAL SECTION: You may perhaps think I display more of temerity than good judgment, in offering for your consideration an essay on this time-honored and much discussed subject, but my recent experience with two cases of Coxo-femoral amputation where the hæmorrhage was effectually controlled after the simple method recently described by Mr. Loyd in the *Lancet* of May 26, 1883, has led me to review the literature at my command of the operation since its first performance by Lacroix, of Orleans, in the year 1748. From the time of the first formal disarticulation at this joint to the middle of the present century, the hæmorrhage was controlled or sought to be, by digital compression against the pubic ramus at Poupart's ligament; by securing the crural vessels at that point, or below in Scarpa's triangle, or by the fingers of an assistant following the knife of the operator in fashioning the anterior flaps. We are told by Dr. Otis, that in 1845, "Mr. Cox advised that the arterial compressor, invented by Signoroni, of Padua, should be employed in amputations at the hip joint to control the arterial circulation at the groin without impeding the return of blood by the veins." In the year 1860 Prof. Joseph Pancoast introduced in Philadelphia the compressor for the abdominal aorta; a little later a modification of the same instrument was used in England by Professors Lister, Syme, and others, and by the French and German surgeons on the continent. Since that time innumerable devices have sprung up, having the same end in view, viz.: that of controlling the circulation through the terminal branches of the common iliac. Since its introduction the aortic compressor has been considered by many an almost indispensable adjunct to the operation. Nearly every modern surgical text-book speaks favorably of it, but a few writers, however, still cling to the older method of securing the femoral vessels by a preliminary operation. What are the objections to digital compression of the femoral as it emerges from beneath Poupart's ligament? Davy speaks of it thus, in comparing it with his ingenious device, the rectal lever: "I can only state that after a surgeon has proved, practically, how very easy it is to prolong indefinitely compression by the lever, he will not care to submit to the fatigue, uncertainty, and anxiety of digital pressure." The degree of pressure must fluctuate with the movements of the patient; in fat subjects it is difficult, extremely fatiguing, and must be at times uncertain, and withal, even though accurately and efficiently done, only one of the two avenues through which impending calamity is to be anticipated, is controlled, for I believe all surgeons stand as much in dread of the posterior as the anterior vessels. Digital compression of the aorta may be resorted to, but except in the case of young or much emaciated subjects entails the same objections as attach to femoral compression, only greater in degree, and has the additional objection of interrupting the circulation to both limbs, and interfering in some degree with abdominal respiration.

The objections to the preliminary ligation of the femoral vessels are, first, the additional time required; second, an additional wound, and thirdly, as Dr. Ashurst suggests, "that the extensive separation of the artery from the surrounding tissues, which is unavoidable in this preliminary ligation, must expose the patient to greater risk of secondary bleeding than when the vessel is simply picked up by forceps or tenaculum after division as in other amputations." With reference to the abdominal tourniquet, to quote again from Dr. Ashurst's surgery, "although the benefits derived from the use of the aortic compressor in this operation are unquestionable, yet the pressure necessarily exercised upon the important nervous structures contained in the abdominal cavity must be at least undesirable, if not positively injurious." There is the possibility of a deviation of the artery from the mesial line sufficiently to make its control by pressure a matter of some difficulty. The interference with abdominal respiration in weakly subjects under anæsthesia may induce much additional embarrassment. The possibility of making harmful pressure; the interference with the circulation to the sound as well as the unhealthy limb; its absolute inapplicability to those cases requiring prolonged control of the circulation, such as sequestrotomy, excision, or the removal of extensive growths from the upper femoral region—all these objections certainly militate much against its general usefulness. Until quite recently Davy's lever was, perhaps, the most popular and efficient instrument which had been introduced to the profession for this purpose. It was easy of application; not likely to become displaced when once in position; did not interfere with the respiratory movements; the pressure was confined to the common iliac of the affected side, and was efficient without embarrassing in any way the operator. It was supposed to be entirely harmless, but unfortunately, not long since, a death occurred, caused, it is said, by peritonitis, which had resulted from the pressure of the instrument, this accident occurring when the instrument was in the hands of its inventor. While it serves its purpose so admirably in many respects, yet I think its having been the cause of a fatal issue in this individual case will be sufficient to circumscribe its general use. The hand introduced into the rectum has been used as a substitute for the lever, but in a case reported by Dr. Thorndike at the Boston City Hospital, it was found impossible to adopt this method, as the arm of the assistant was in the way of the operator.

The method of Brandis, spoken of by Esmarch in his "Surgeon's Hand-book," is but a modification of the principle of the abdominal tourniquet, and

has all of its objections without any of its advantages. In the *American Journal of Medical Sciences*, April, 1882, is given a description of a method of amputation at the hip joint by Professor Freudelenburg, "the principle of the method being the compression of the entire tissues of the flaps before the division of the large vessels, indeed, before the flaps are cut," by means of a steel skewer which is made to transfix the thigh in front of the femur, the tissues in front of the rod being compressed by a rubber tube wound in figure of eight fashion from end to end of the rod. The flap is then cut with a Lisfranc's knife, from within outward, as in the usual manner by transfixion. All vessels in this flap are now secured, and the skewer removed. The next step in this operation is the opening of the capsule and disarticulation of the femur, after which the rod is again passed through the limb behind the joint, the compressing band applied, and the posterior flap cut and cared for like the anterior. The objections and disadvantages of such a complicated and protracted operation are sufficiently obvious, and require no further consideration. Dr. Lewis Marshall, in the January number of the *American Journal of Medical Sciences*, reports four cases of amputation at the hip joint, after the manner of Mr. Furneaux Jordan. His description of it briefly is as follows: "If incision has been previously practiced, the existing incision is prolonged to about the middle of the thigh, the femur enucleated, the soft parts cut through with a circular sweep of the knife, and the femoral artery tied." Mr. Jordan, in his single case, controlled the bleeding by a tourniquet on the external iliac. In commenting upon this case, Mr. Jordan says that, "as compared with the ordinary operation of two flaps, the wound was less severe; the cut surfaces were less extensive, and in a manner further removed from the trunk; it was followed by less shock, less hæmorrhage, less opportunity for septic infection. The vessels cut were more easily dealt with. The muscles may be cut on the same level as the skin; the bone being absent, they retract so strongly that the skin readily covers them; its vitality is less endangered, and a great cellular plane is not opened. The bulk of the soft parts of the thigh, especially near the pelvis, lie at the inner side of the femur. Why put a knife through these parts? The surgeon may, if he choose, make the circular sweep before the shaft of the bone is turned out, if precautions against hæmorrhage have been very complete." It will be seen that this method described as Mr. Jordan's is a modification of the old circular amputation, as originally performed by Abernethy and subsequently by Lacanchie, was made with the additional "vertical incision over the trochanter major to facilitate disarticulation," Mr. Jordan dividing the skin, soft parts and bone at the same level, instead of cutting through the skin and retracting it before cutting through the muscles, and by dividing all the tissues at a point more remote from the body. Mr. Loyd's plan for controlling hæmorrhage in amputations at the hip joint was first put in execution at the Queen's Hospital, Birmingham, England, June 17, 1883. He thus describes it: After having emptied the limb of its residual blood, by elevation and gentle friction toward the trunk, "a strip of black India rubber bandage, about two yards long, is to be doubled and passed between the thighs, its centre lying between the tuber ischii of the side to be operated on and the anus.

A common calico thigh roller must next be laid lengthways over the external iliac artery. The ends of the rubber are now to be firmly and steadily drawn in a direction upward and outward, one in front and one behind, to a point above the centre of the iliac crest of the same side. They must he pulled tight enough to check pulsation in the femoral artery. The front part of the band passing across the compress occludes the external iliac, and runs parallel to and above Poupart's ligament. The back half of the band runs across the great sacro sciatic notch, and by compressing the vessels through it, prevents bleeding from the branches of the internal iliac artery. The ends of the bandage thus tightened, must be held by the hand of an assistant placed just above the centre of the iliac crest, the back of the hand being against the surface of the patient's body. It is a good plan to pass the elastic over a slip of wood held in the palm of the hand, so as to diminish the pain attending the prolonged pressure of the rubber bandage. In this way an elastic tourniquet is made to encircle one of the innominate bones; checking the whole blood supply to the lower extremity. When the band is once properly adjusted the assisttant has only to take care that it does not slip away from the compress or over the tuber ischii. The former is prevented by securing pad and band together by a stout safety pin, and the latter by keeping the securing hand well above the iliac crest, or even more safely by looping a tape beneath the elastic near the tuber ischii, passing behind it under the sacrum and having it held in that position. The ligature being altogether above the limb is out of the way of the surgeon, in any operation at or about the hip joint. The great trochanter is fully exposed, the hip being free upward as far as the iliac crest, and inward to the perinæum. The plan is equally applicable in amputation by transfixion, or in excision of the joint." The advantages accredited this method by Mr. Loyd, are as follows: "A minimum disturbance of the general circulation. There is no interference with abdominal respiration. There is no danger of injuring the abdominal contents. The simplicity and accuracy of its application; no previous experience being necessary to compress the vessels, there is no possibility of going wrong. The security with which the vessels are controlled, regardless of the movements of the patient or manipulations of the operator." It is applicable to all cases, and requires no special apparatus. In the light of experience furnished me by the two cases of my own, I am satisfied that this method of Mr. Loyd's is all that is claimed for it; it is simplicity itself, and as efficient as it is simple. With the Esmarch's bandage, and the roller applied as he directs, hæmorrhage is no more to be dreaded than in an amputation in any other part of the limb.

With reference to the form of amputation, too little

prominence by surgical writers, I think, has heretofore been given this modification of the circular amputation suggested (as Dr. Otis tells us in the renowned circular No. vii. of the war department) by Lacanchie in 1350. Besides affording easy access to all the vessels requiring ligation, it has the additional advantage (as pointed out by Surgeon Boutecou, U. S. A.) of permitting the examination of the femur as high as the trochanters before disarticulation, and as before quoted from Furneaux Jordan, the wound is less severe; is in a measure more remote from the trunk; the great bulk of muscles lying on the inner side of the femur are not disturbed, and from this non-interference with this mass of muscles less liability to septic infection follows; the vitality of the flaps is less endangered; the wound is as favorable for drainage as any other, and its performance even by a novice is a matter of comparative ease. In both of my cases a circular division of the limb was made, cutting through skin, muscles and bone on the same plane. The knife was applied about an inch and a half or two inches below the gluteal fold. Immediately on dividing the bone the vessels were secured. A vertical incision was next made beginning above the great trochanter and carried down the outer aspect of the thigh to intersect the circular incision. The remainder of the femur was removed as nearly as possible subperiosteally, the knife being used only in separating the muscular attachments to the trochanter and the division of the capsule. Notwithstanding the muscles were cut so near their origin, the skin afforded ample covering. There was absolutely no active hæmorrhage in either case, except from one or two small articular vessels.

The general adoption of the method of Mr. Loyd will, I believe, rob this amputation of one of its greatest dangers, and will confer an inestimable boon upon the unfortunates who are to suffer exarticulation at this joint, as well as contributing greatly to the comfort of the surgeons who are called upon to make it.

Accompanying this paper are three sketches. No. one (1) shows the method of removing the limb, Nos. two (2) and three (3) the application of the tourniquet.

EFFECTS OF MURIATE OF COCAINE ON THE ORBICULARIS PALPEBRARUM.

BY J. L. THOMPSON, M.D., INDIANAPOLIS,

OF THE CHAIR OF DISEASES OF THE EYE AND EAR, MEDICAL COLLEGE OF INDIANA.

In the report of the following cases it will be my endeavor to simply state the facts as briefly as possible, leaving the profession to judge as to the efficacy of this alkaloid in eye surgery.

In the first case a two per cent. solution was used, but in the nine following ones it was increased to four per cent. No question could be entertained as to its purity, as it came from Merck's, and its peculiar action on the orbicularis corroborated this belief.

CASE I. Machinist, æt. 34. F. B. (Emery) deeply imbedded in the right cornea, of three days' standing. The solution was dropped into the eye every three minutes for fifteen minutes when the body was dug out with a spud. He stated that the operation did not hurt much.

CASE II. Very severe trichiasis, in which Arlt's operation for transplantation had been previously performed, and in which the tarsal margins were very much notched, and most of the ciliæ were still inverted. The proposed operation was to remove the anterior tarsal margin of each upper lid, with all of the hair bulbs. James H., æt. 33, was taken before the class at St. Vincent's Hospital. Three drops were instilled into the eyes every three minutes for twenty minutes, and besides this eight drops were twice injected subcutaneously at the outer canthus of the right eye. A narrow scalpel was thrust into the edge of the lid for the purpose of splitting it, but he kicked, bellowed and struggled so terribly that the operation had to be completed under ether.

CASE III. Removal of portion of prolapsed iris, in case of ulcerative keratitis. W. S. æt. 16 years, very strumous; has had "sore eyes almost since infancy." Three drops were put into the eye every three minutes. When the first application was made the orbicularis resisted one's efforts to open the lids, but on each renewal less resistance was experienced until it was found easy to drop them into the eye, even without touching the lids. She did not flinch when the speculum was applied, but when the iris was seized with the forceps she complained very much, but we succeeded in excising it.

CASE IV. John E. S., æt. 34, a traveling salesman. Very small chalazion at tarsal margin of left upper lid. Two drops were used in the eye every three minutes, and dropped on the outside of the lid while he occupied a recumbent position. He was told that while this would not cause the operation to be painless, it would very much mitigate it by benumbing the parts, thereby removing about three-fourths of it. When first dropped into the eye he flinched and contracted the lids greatly, but after a few additional applications, he soon suffered its use without any resistance, and in twenty minutes the pupil was widely dilated, and the eye much more widely open than the other. Knap's lid clamp was then applied, and the little growth was removed while the patient puffed and blew like a porpoise. When the operation was finished he remarked that it was a great blessing that a remedy was used which removed three-fourths of the pain, as the remaining one-fourth nearly killed him.

CASE V. Emma S., æt. 17. Strabismus convergens of over six lines, requiring operation on both internal recti. The usual 4 per cent. sol. was used every three minutes for nearly forty-five minutes until the pupils were widely dilated, and the resistance of the orbicularis most thoroughly overcome; but no sooner was the conjunctiva grasped, than she struggled and complained most terribly, and this she kept up during the whole length of the operations on both eyes, and she vomited during the following afternoon and night.

CASE VI. William W., æt. 50. This was a patient on whom an extraction for cataract had been

made six months before, from the right eye, which had been followed by irido capsulitis and closed pupil; in the left he had cataract and iridodonesis. The operation was an artificial pupil in the right, and a preliminary iridectomy in the left. When first operated on for cataract he contracted the lids so tightly when the speculum was placed in the eye, that it was removed until ether was administered and the operation finished. This was an excellent case in which to test this remedy. The drops were applied every three minutes for over twenty and until the left pupil was well dilated. After the third time of using them he became much less touchy about his eyes, and very soon they were used without any winking at all. The speculum was applied to the left without any resistance on his part, but when the conjunctiva was grasped by the fixation forceps he winced considerably, and when the iris was seized he jerked, and tore it loose from the forceps; again was it grasped and cut off while we scolded him most unmercifully for his nonsense. More drops were used on the right eye when a similar experience was again met with, and the operation was finished with De Wecker's scissors.

Case VII. Patrick H. B., æt. 48, machinist. Removal of small piece of steel from the cornea. Two drops instilled every three minutes for fifteen, and body dug out without any difficulty. On questioning him he said that it did not hurt much; hardly as much as usual. We must remember, though, that machinists are so in the habit of having bodies removed by their fellow workmen, that these are not of the best class to test the virtues of this remedy.

Case VIII. Re-insertion of style in nasal duct. Mrs. C., æt. 49, had submitted to the operation for stricture of the duct, and had had a style inserted without taking an anæsthetic, two months previously, and had made but little complaint during the operation; but on its removal, every ten days or two weeks, she always said it pained her on its insertion. This was doubtless owing to the peculiar curvature of the passage. The drops were used very freely for the usual length of time, and no force was exerted in replacing said style, but she experienced no difference whatever in the slight pain usual to its insertion on former occasions.

Case IX. Removal of half of the prolapsed iris in lacerated wound of the cornea. John H., colored, æt. 52, was wounded with a brickbat two weeks before, and had been kept quiet with iced compresses and atropia locally, before I saw him. The eye was still much inflamed, and quite a chemosis was present. The cocaine was used every three minutes for twenty minutes, when the speculum was inserted. He flinched but little during this part of the operation, but when the iris was removed he complained very much.

Case X. Enucleation of the left eye-ball for sympathetic irritation. Ellsworth C., æt. 20, lost the vision in the left sixteen years ago, from wound through cornea and ciliary body. Three weeks ago he commenced losing the sight of the right eye. He was urged to have the eye removed under the influence of the cocaine; was told that though it would not entirely relieve pain, it would very much mitigate it. He was treated with it every three minutes for over half an hour, but he declared that he did not feel any difference in the eye, though it was noticed very early that after the use of the first few drops he ceased to contract the lids, and the medicine was applied without having to open the eye with one's fingers. He made no complaint when the speculum was adjusted, shrank a little while fixing the eye, and urged me to hurry up while the muscles were being taken up. The operation lasted two and a half minutes, and when completed he asked if the eye was out, and said that "It did not hurt half as badly as he had expected; but as he had never even had a tooth pulled, did not know how much such cases did usually hurt one." He seemed dazed during the operation, and doubtless would have acted similarly had no cocaine been used.

From the above experience it is my opinion that as an anæsthetic in eye operations this alkaloid has been exceedingly overrated, and that many of the cases which have been reported would have done almost as well had it not been administered. I have been strikingly strengthened in this opinion quite recently, for while waiting for the arrival of the medicine (which took nearly four weeks to procure) an unusual number of cataract cases presented themselves for treatment, all of which were operated on without any anæsthetic whatever, and, doubtless, had it been used in these, as was my intention, I also would have gone into ecstacy concerning its "wonderful" efficacy. I have used it in a very large number of cases where my object has been simply to get a view of the whole of the fundus of the eye, and for this purpose it seems to have no superior, as its effects pass away more rapidly than even when homatropine is used; but it does not seem to sufficiently relax the accommodation to justify its use in the exact measurement of anomalies of refraction. While using it for the purpose above-mentioned, I found that its effects upon the palpebral portion of the orbicularis are much greater than are those of other mydriatics, as in a very large majority of the cases in which it is used the eye is opened much more widely. Again, its action upon the sphincter of the eyelids points to its desirability in cataract extractions, as they undoubtedly tolerate the speculum much better than when it is not used. I would also suggest its use in tonic blepharospasm. My next door neighbor, who is a throat specialist, tells me it has done wonders with the nasal mucous membrane. So, taking these things into consideration, it seems to be a valuable agent in a limited field. It is to be hoped that the newspaper puffs which it is receiving on every hand may continue, as by this means we can tell our patients that we are going to resort to that "precious" remedy concerning which they have, doubtless, read so much; then many will submit to operations without the aid of ether who would never have consented before. Faith in the remedy will have its effect on others, and by the time this has found its true position, in all human probability something else will arise to take its place.

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ON THE [1]UNITY OF POISON

IN SCARLET, TYPHOID, AND PUERPERAL FEVERS; ERYSIPELAS, DIPHTHERIA, SORE THROATS; CERTAIN FORMS OF DIARRHŒA, AND ALLIED AFFECTIONS; PLEURISY, PNEUMONIA, PLEURO-PNEUMONIA; AND MANY OTHER AILMENTS USUALLY CONSIDERED TO BE SEPARATE AND ENTIRELY DISTINCT DISEASES.

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"If a man be content to begin with doubts he shall end with certainties."—BACON.

"All scientific novelties are subject to inconsiderate criticism."—PASTEUR.

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From the facts connected with these [2] affections—clinical and pathological—embracing as they do, the etiology, the history of origin, progress,[3] interchange, and inter-communicability, mode of propagation, hybridity, and transmutation, we cannot avoid arriving at the conclusion that these ailments may be generated *de novo*, and from one common source, as well as by direct communion with one already suffering; or by indirect, through some secretions, excretions, or some thing, or person, that has been in contact, or communication with the sick.

That there are two forms of scarlatina is distinctly manifest—a fact thoroughly established on evidence from which there is no escape. There is—1st. That contracted from a scarlatina patient, or from some one or thing that has been in contact with him, or in communication with him. To this I give the name orthodox scarlatina. There is—2nd. That generated *de novo* from blood poisoning, such as occurs in puerperal patients, and in surgical cases (the "surgical scarlatina" of Sir James Paget) from deleterious matters absorbed or otherwise passed into the blood, and thence into the tissues of the body more or less generally; or from noxious drains, sewers, imbibition, or ingestion of pernicious articles of drink or food—such as tainted water, milk, cream, decomposing animal or vegetable substances. To this form I have given the name toxæmic, to distinguish it—as regards origin—from the orthodox. As an example of what I mean I shall give the following particulars:—

At one of the meetings of the Harveian Society the President brought forward a case which he termed "simulative scarlatina from eating tomatoes," in which occurred all the symptoms of scarlatina, except that there was no desquamation; and for albumen in the urine no search was made.

In passing, however, I may observe again—I have made the same remark elsewhere—that desquamation is no proof whatever of the existence of orthodox scarlatina, and its absence no disproof of orthodox scarlatina having attacked a patient; for, high temperature of the skin, arising from any causes—and they are various, setting scarlatina aside altogether—will occasion such rapid cell changes, that the surface cells will be thrown off in larger or smaller quantities, and, according to the height to which the temperature has run, will they be shed wholesale, being effete. Thus arises that process which we call desquamation. In some undoubted cases of scarlet fever there may be only slight exaltation of temperature, or so transiently may it take place that it escapes detection; or it may even be altogether absent, owing to the great and sudden depression of vitality produced by the virulent character of the virus, or by the largeness of the dose taken into the system, or the suddenness of its invasion. With this absence of high temperature desquamation will also be absent. Nor is albumen in the urine a pathognomonic sign of scarlet fever poison pervading the system. In how many conditions and affections of the body other than those demonstrating the existence of scarlatina will not albumen be found? "There is nothing unusual in the fact that inflammation of an important surface should be attended with albuminuria," says Mr. Jonathan Hutchinson. (See *Brit. Med. Journal*, May 3, 1879, page 665, under head of Discussion at Medico-Chir. Society on Report of the Committee on Croup and Diphtheria.)

Here—in the person of the patient brought before us—was undoubtedly a case of "toxæmic scarlet fever," symptoms generated, as far as could be traced, by the eating of tomatoes. No source of contagion or infection having been discovered or being discoverable, no other source of origin, these fruits were apparently the *origo mali* of certain chemico-physiological changes in the system, which were sufficient to produce a general poisonous effect that demonstrated itself in certain physical changes, phenomena or symptoms—the majority of which, or the entire in the aggregate, being such as to lead the observer to say the patient had got scarlatina.

Bearing upon this case, I would adduce an instance wherein the symptoms of scarlatina were all so marked that it is specially applicable, and fully corroborates the President's in showing that ingested materials will at times induce symptoms so closely resembling orthodox scarlatina as to be undistinguishable. And here I would ask, if distinguishable, how, then, does the attack differ from orthodox scarlatina, *i. e.*, that which has been contracted from a scarlatina patient, or some one or thing that has been in communication with him? *The difference lies only in origin!* In my case the symptoms rose from eating very high game, and though not proceeding from eating tomatoes, it is relevant—1st. Because in all points it

[1] By unity is meant not that the poison is always the same, but that the one poison—the one *origo mali*—whatever it may be, will originate several so-called different affections.

[2] I had at first placed at the head of my paper only the first four diseases (keeping to the conventional word).

[3] "Erysipelas is a specific disease, due to the presence of some blood poison that has probably been introduced into the body from without; it is intimately allied with other blood poisons, such as are found in scarlet or puerperal fevers, or septicæmia in any of its forms: for their poisons seem to be convertible."—Bryant's *Surgery*, second edition, vol. i, p. 44.

was one of "simulative scarlatina"—a name I was the first to use some years back, but for which I now prefer to use the term "toxæmic scarlatina;" 2nd. Because it arose from a similar, though not the same cause, ingested material; and thus, thirdly, was an answer to the query propounded,—Were the symptoms in the instance before us due to eating one of the solanaceæ order?—inasmuch as it shows that causes other than *the active*[1] *principle of that order* produce such symptoms, even while admitting that the active principle of the tomatoes may *per se* at any time, under any circumstances at all events, set up toxæmic scarlatina, and may in this particular patient have directly produced the symptoms and been the direct exciting source of the illness.

A second case which I would adduce bears strongly on the same; so strongly, indeed, that though having published it in 1875, I will quote it, as it also is to the point:—

1st. Because in symptoms it was identical; 2d. Was what would be termed "simulative (toxæmic) scarlatina;" and 3d. Showed that these symptoms may arise even from *animal* poisons passing into the system *in a way other than by the mouth;*—viz.: by the womb, in contradistinction, though not in opposition, to the tomatoes case.

Thus again answering the question directly by showing that the "simulative (toxæmic) scarlatina" symptoms are not *necessarily* dependent upon the ingestion of solanine, since they will be produced by animal irritants and poisons absorbed not through and from the mouth and stomach alone, but in other ways also.

I will here relate the case—a typical one, and such as has come before every medical man.

The conditions alluded to, and which are identical with scarlatina—are the same I now consider—have their origin not from orthodox scarlet fever contagium, that is, from a scarlatina-infected person, or some one or thing belonging to such a patient—there never having been any exposure to scarlatina in that way—but from the putrescing and offensive matter in utero and vagina, the resulting pyrexial action being indicative of the concealed cause, the latent mischief, that, without careful observation, might pass unobserved.

With the train of symptoms to which I refer, who practising obstetrics is not acquainted? The chilliness and shivering, the sickness, the dreadful headache, and the congested eyeballs from which the paining light must be veiled, or even shut off altogether; the sore throat, crimson with inflammation; the peculiar tongue; the hot, pungent skin, that so rapidly sends up the mercury, and is *dyed with the unmistakable rash*, with which there is a tinge of jaundice-yellow, here and there more noticeable; the delirium; the oppressed heart and breathing; and later on the diarrhœa. What are these symptoms to be termed? Not *simulative* scarlatina, surely, since they are not simulative at all, but are exactly the same as obtain in scarlatina contracted from a previously infected person or source—orthodox? What, then, are they? Symptoms of what, for contradistinction's sake, I term "toxæmic scarlet fever," but assuredly as true scarlatina as the other form—the orthodox—though not generated in the same way, but generated *de novo* in the woman herself, and the outcome of the condition of blood poisoning existing, *not* from the introit of a *specific virus*, but of elements given off in utero or vagina—not, it may be, noxious when given off, but becoming so subsequently from morbid changes—and, when noxious, taken into the system; a blood-poisoning, I repeat, the result solely of the putrefying animal matter in utero or vagina, and of unhealthy changes, taking place locally first, in the generative tract and system, setting up local mischief primarily, and then developing and evoluting through the entire body of the puerpera, till all the symptoms I have portrayed have made their appearance. In a scarlet-fever epidemic, such a group of symptoms happening to the lying-in would be set down to scarlet-fever poison, contracted from another affected with it, or from some one or thing belonging to, or that has been in contact with, such an infected person; for it is not yet generally accepted that scarlatina can commence *de novo* in the manner I describe. But these symptoms will be found where no previous case, or contagium, or source of origin other than what I name, has existed.

What, then, are those phenomena? I gave them the name of bastard or simulative scarlatina when I first wrote on this subject, not at that time considering them true scarlet fever; or knowing that the ailment could be so produced; or, indeed, be produced *de novo* in the ways that further researches have shown me it can. True—orthodox—scarlatina I consider to be that form contracted from a previously existing case, or from some one or thing connected with, or which has been in some way or another brought under and near the influence of the scarlatina virus existing in a previously infected patient. Bastard, or simulative scarlatina—toxæmic—I consider to be those scarlatina manifestations or appearances heretofore deemed mere resemblances—a view I also then took, but which I now know to be not resemblances, bnt the actual manifestations themselves of toxæmia set up otherwise than from orthodox scarlatina, differing only from the orthodox form in that they originate *de novo* from such sources of contamination as may occur in the lying-in; or from vitiated water, milk, cream, or the taking in of "high," *i.e.*, putrescing articles of diet,[1] or decomposing drinks, such even as milk which has begun to undergo deterioration, it may be simply because it has been long "drawn;"[2] or it may be because it

[1] Belladonna, it is well known, produces scarlatinous efflorescence, etc., etc.

[1] Upon this Dr. Carpenter wrote very clearly in 1853, in the *Brit. and For. Medico-Chirurg. Review.* See his article, "Predisposing Causes of Epidemics."

[2] The following remarks will explain what I mean when I say that even milk undergoing deterioration will produce scarlet fever:—On Thursday, January 30, 1879, at the meeting of the Metropolitan Counties Branch of the British Medical Association, Mr. Gay, in a paper on "Milk as Food for Man," said:—"In the absence of any positive knowledge as to the source of the various exanthemata—measles, scarlatina and the like, characterized by fever, and without doubt related to some form or forms of blood poisoning, disorders that abounded mostly after dentition, and when milk was often the predominating, if not the sole article of food, was it unreasonable that we should turn with suspicion to *those unwholesome ingredients of decaying milk* for their explanation?" He continues—"Milk when once exposed to the air and rest, underwent a series of chemical changes through the influence of external and internal agencies which

has been allowed "to stand" in a place, and under circumstances of temperature,[1] etc., which would permit or hasten unwholesome changes,[2] the milk being at the time not unpleasant to the ordinary taste, nor even at all perhaps perceptibly altered in flavor.[3] I now recognize these symptoms, arising from causes other than the infection or contagion derived from a previously infected person or thing, to be as true scarlatina, and capable of becoming in its evolutions and its transmigrations from one to another, as infectious and contagious as the other form. In confirmation of this view I would name that Sir Wm. Gull has stated his belief that diphtheria may "*commence locally*, forming a poison which will propagate itself;" and he has "drawn a distinction between diphtheria and diphtheria poison, regarding the disease as beginning with a poison, but *sometimes as commencing locally, and forming a poison which may propagate itself.*"—(*British Med. Journal*, May 3, 1879. Page 666.) This bears me out in the contagious and infectious character of toxæmic scarlatina; and the evidence of Burdon Saunderson, which I have quoted in my former paper, to the effect that an inflammation may begin as "simple" but go on progressively to what would be termed specific, also is corroborative. Again, we know that a benign may be converted into a malignant ulceration, progressively, under continued irritation.

And it will be found that scarlatina generated *de novo* from blood poisoning, or effected in any other way than that *usually accepted as being the only way* in which scarlatina is generated and propagated—viz.: from a previously scarlatina-infected person or thing —is infectious and contagious alike with the other form. I do not now consider *that* to be bastard or simulative scarlatina which I formerly described as such, but look upon it as true, *generated differently, propagated similarly*. I was first led to these conclusions by a case of auto-genetic poisoning, which was under my care in 1875, in which scarlet fever symptoms obtained, but which, recognized to be wholly the consequence of a morbid condition of the uterine system and its excretions, in fact, begotten and conceived *in utero* from putrescing matters therein, I treated accordingly, by grasping the soft spongy uncontracted uterus with my hands, compressing it, expelling thereby the retained and offensive clots, washing out the vagina and uterus by means of Higginson's syringe —Condy and warm water being used every two hours till the lochia became quite inodorous. Had I, however, seen the patient for the first time when those scarlatina symptoms were fully developed, and had I overlooked her puerperal state and the condition of the uterine system, I might have erred in supposing I had to deal with scarlatina from a previously infected person or thing, have overlooked the *de novo* origin of the case—the latent uterine mischief—have neglected the ablutions and cleansing processes, have treated the ailment in the orthodox fashion as being contracted from previous scarlatina infection, and no doubt have lost my patient. But being alive to the puerperal facts and bearings to which I have drawn attention, I at once proceeded as I have described, and the correctness of the diagnosis was evinced by the immediate improvement in the lady, commencing as it did from the very time I got rid of the offensive clots and washed away the noisome lochia. Within twelve months I had three cases of puerperal blood-poisoning, in which not alone was scarlatina rash well marked, but also the other symptoms of scarlet fever. I had learned from my first case valuable knowledge by which I have profited, and these later patients I accordingly treated as suffering from toxæmic scarlatina. Some time ago I had, in consultation with Dr. Joliffe, of Shepherd's Bush, a case of typhoid fever, in which relapse occurred while convalescence was advancing and desquamation—as truly marked as in what would be termed a typical case of scarlatina—was actually taking place. In the same house where lay this sick mother some of the youngest members of the family had previously been affected with scarlatina, others having suffered from what is termed scarlatina throat, while others again were at the time complaining of the same, the cause of the outbreaks being, as far as could be discovered, the defective drains, which allowed regurgitation of noisome smells and vapors into the house.

Since 1875, when I first entered upon the study of this question—the unity of poison and differentiation of resultant phenomena which we call symptoms—not because of any difference in the poison which

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ensued in its degradation and decay, its last stage being that of a limpid fluid, mainly composed of water, salts and acids, amongst which figured the lactic, butyric, caprionic, and capriolic. To this downward career it was carried by becoming the habitat of hroods of vihriones of different kinds, and, according to Professor Lister, of a certain bacterium—bacterium lactis—and by certain carpetings of its surface by oidium and other varieties of mould."

[1] "M. Fauvel, of the Paris Chemical Laboratory, has discovered an additional danger to that abominable invention, the baby's feeding bottle. Of 31 feeding bottles taken from various creches in Paris, 28 contained both animal and vegetable life, the milk remaining in all smelt badly, was acid and half coagulated; the globules were deformed, and numerous very lively bacteria, along with some vibriones, were present. On cutting open the caoutchouc tube through its length, coagulated milk, with small organisms, was met with; but a still more important fact was the presence in the nipple of a mass of vegetation of cryptogamic nature. Some of these bottles had been washed and were ready for use."

[2] The lactic fermentation has relations to a small oval bacterium, which hence has been called by Lister, bacterium lactis.

[3] These deleterious, if not absolutely poisonous changes, in a fluid introduced into the system and taken up into the blood, show how milk and cream, and substances or fluids with which they are mixed and combined, can and will prove a source of originating blood-poison which, in different periods of life—cycles of age—and under different circumstances, will declare itself in symptoms at one time, or in one person, of one or other of *so-called different* AFFECTIONS; at another time in the same person in a different form or set of symptoms, or at the same time in different people in the different manifestations to which have been given specific names—scarlet fever, typhoid, puerperal fever, diphtheria, erysipelas, etc.—for the purpose of distinction and of conveying to others what we mean, and which I look upon as phases of the evolution of the one poison.

I would call to mind how often the puerperal woman is dosed with gruel made with milk—that has in many cases been "standing" for some hours, and it may be in the puerperal room itself, wherein the atmosphere is not always, by ignorant people, kept the sweetest,—on the supposition that milk creates milk; how the children, and husband, and household often partake of the same milk; and how vitiated (as shown in Mr. Gay's paper) even good milk becomes by "standing," how much more by standing in the atmosphere of the lying-in chamber; and how readily this one fluid becomes an originating virus, a one *origo mali* in a household, or circle of people poisoned with it, amongst whom there would be *from this one source* a differentiation and divergence of results, of phenomena of the poisonous action, of symptoms directly consequent, so that one or more would be said to be suffering from scarlatina, others from typhoid and diphtheria, or one of the other generally supposed specific and distinct ailments of which I write. the lying-in mother being attacked with what would be termed puerperal fever: all the differentiations resulting not from a difference in the poison, but of the persons brought under its influence.

The experiments of Pasteur on chicken cholera are well-known. In hope of diminishing the infective power of this organism, *he grew it in oxygen* for a long time, and the found not only that *it produced a modified disease*, but that this attack in most cases protected the animal from the effect of the organisms *in their most virulent state!*—*Brit. Med. Journal*, December 31, 1881. Page 1062.

may be the *origo mali* of so-called various diseases, but differentiations dependent upon the media through which the poison passes, or upon which it falls, the evolutions and developments of that one poison being marked by new phases, new manifestations to which rightly we should not apply the expression separate diseases, but rather call them simply what they are, the various expressions of the evolutions of that unity of origin whatever it may be, which has set them all agoing—since, I repeat, I first entered upon the study of this question, my researches have made clear to me what before I had not recognized; and out of much mistiness, obscurity, and chaos of facts, ideas and thoughts, clearness and definiteness have evolved in my mind, so that what was to me—as to every observer in a new path—at first vague, indefinite, unshaped, has become certain and embodied in realities. What at one time I feared to be incapable of proof has come to be more and more provable, till at length it has become proved; what at one time from former teaching and consequent prejudice seemed to me to be false, has gradually opened out to me as true, till it has come to be established in my mind as a great truth.

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APPENDIX.

It is with great pleasure that I embrace the opportunity of presenting through the medium of the JOURNAL the theory of "the unity of poison," advanced by Dr. Griffith, who has courteously permitted me to republish his views, as they have appeared from time to time in the columns of the Glasgow *Medical Journal* and *Midland Medical Miscellany*. The author has kindly consented to allow me to comment upon the views expressed in the foregoing pages, and I shall therefore make such comments as are suggested to me by their perusal.

While accepting, in the main, the arguments advanced by Dr. Griffith, and believing them to contain the germ of a great truth, there are some points to which I think we may take exception. In the first place (such eminent authorities as Paget notwithstanding), the propriety of dividing scarlatina into two distinct forms, such division being dependent upon a hypothetical difference in their etiology, is questionable. The occurrence of efflorescence, pyrexia, desquamation, and albuminuria, one or all, consequent upon the ingestion of tomatoes (which ordinarily are a healthful article of diet), does not constitute scarlatina, any more than pain in the side, fever and cough, one or all, constitute a pneumonia, but such scarlatinoid symptoms simply indicate that the poison, whatever it may have been, has the same physiological action as the *materies morbi* of scarlatina. The similarity of symptoms does not indicate a similarity of poison, *but that there is some physiological co-relation due to the fact that the effects of both poisons are manifested through their influence upon the same portion of the economy, viz.: the sympathetic ganglia and trophic nerves.* The "toxæmic scarlatina" is probably not scarlatina at all, being simply a collection of morbid phenomena due to profound disturbance of the sympathetic ganglia, by a powerful organic poison, and perhaps influenced greatly by idiosyncrasy. Some persons cannot eat shell-fish without a severe resultant urticaria, not because shell-fish *per se* are poisonous, but because the sympathetic system in such individuals is intolerant of that particular article of diet. As Dr. Griffith states, belladonna produces an efflorescence resembling scarlatina. Quinine, copaiba and other drugs will produce an eruption, and in the case of quinine especially, usually in cases of idiosyncrasy. The specific poison of syphilis produces an eruption resembling measles, which is entirely independent of cell proliferation. This "roseola" is transitory, and produces no permanent change in the tissues affected. We could hardly accept these phenomena as evidences of their identity with measles or scarlatina. But there must be some explanation of their similarity, and that is the fact that *certain poisons act upon the system through the medium of some physiological disturbance of the sympathetic.* The medium being the same in all cases, a similarity of the resultant morbid phenomena might reasonably be expected. Perhaps, as the author states, the difference between the different series of phenomena, as developed particularly in the two forms of scarlatina, lies only in "origin," but that is often a very wide difference. The only essential difference between narcotic and uræmic coma is in their origin, yet they are not the same. It is the peculiar origin of each that constitutes the disease.

The author is quite correct when he asserts that the absence of desquamation and albuminuria is no proof that scarlatina is not present in a given case, but at the same time that fact could hardly be advanced as evidence of the unity of origin of "orthodox" scarlatina, and the systemic disturbance caused by the ingestion of tomatoes, or too high game. Even if both phenomena were quite frequently present in the so-called "toxæmic" scarlatina, they could be quite readily explained, without recourse to the theory of "unity." Desquamation might readily follow any peripheral irritation which interfered with the nutrition of the skin, and as is well known, the same factor of peripheral irritation would explain the albuminuria. As has been shown by Mihrau[1] a full hot bath will produce it. Irrespective of the cause, a vicarious strain upon the secretory structure of the kidney may be quite as effective in the production of albuminuria, as may the selective action of some poison.

While I am heartily in accord with the author in his opinion as to the co-relation of the poisons of disease in general, and especially with the explanation of such an interdependence based upon evolutionary laws, I incline to the belief that the tomato argument is not of great weight. It is hardly safe to attempt to support so radical a position, with so few cases. Again, it must be acknowledged, that it is only in a very small proportion of cases that we can trace our cases of scarlatina to their sources of contagion. In the instance of both the tomato and game cases cited by Dr. Griffith, a mere coincidence is highly probable.

[1] These de Paris, 1882.

In a case of puerperal scarlatina, (even if the occurrence of a "toxæmic" form of scarlatina be admitted) it wonld be absolutely impossible to differentiate it from true scarlatina with a complicating septæmia, which is more than likely to occur, and which in my own estimation, is the explanation of the fatal character of scarlatina in the puerpera, whose secretions become septic as soon as the woman is attacked by the specific disease. The case of "toxæmic" puerperal scarlatina cited by the author, is an ideal picture of scarlatina in the puerpera, complicated by septæmia. I can see no logical reason for the inference that such a case of scarlatina is caused by septic infection.

If such were the case, the disease would occur more frequently in our hospitals, where septæmia is so frequently seen. Even from the evolutionary standpoint, (which in the basis of Dr. Griffith's views) it would be very difficult to explain so sudden a transformation of simple septic matter into the *materies morbi* of scarlatina, as such an occurrence in the puerpera would imply, particularly in cases of autosepsis. The law of evolution is certain, but it is as gradual as it is certain and irresistible. The train of symptoms referred to by the author may not be rare in London, but they are certainly rare in this country, as I think will be conceded by our physicians of extensive midwifery experience, and their rarity is still greater, if cases of indubitable contagion be excluded. As for the *de novo* origin of scarlatina, it can hardly be possible under the circumstances mentioned by Dr. Griffith.

But can scarlatina ever be developed *de novo?* I am quite ready to believe that it can; *but such development must occur by a normal and gradual process of evolution, not suddenly by autogenesis through the medium of a simple septæmia.* Scarlatina has its own peculiar and specific germ, *materies morbi*, or whatever we may choose to term it, and this cannot develop spontaneously in the true sense of the term, *but in the presence of an appropriate environment, the minute organisms (or minute particles of organic matter, if such be the term preferred) everywhere present in the atmosphere, may by a slow and certain process of evolution, undergo a transformation, and acquire new properties by virtue of which they become infectious, and capable of producing disease of a specific type.*

In the same way, organisms of a higher specific type may retrograde, and become harmless. These views may serve to explain the gradual rise and decline of intensity of epidemics. The increase and decrease of virulency of specific diseases may thus be due to imperceptible changes of environment. The propriety of this adaptation of the great truths of evolution to the explanation of the origin and natural history of disease, will of course be disputed by all who oppose evolution as a whole, but if the theory of evolution be correct, and the germ theory of disease be proven, the co-relation of the two is indisputable. *Accept evolution, and we must accept the evolutionary theory of disease.*

It is extremely doubtful whether the processes of simple fermentation and putrefaction are capable of developing the *materies morbi* of specific disease (that of scarlatina for example) an occurrence which to Dr. Griffith, appears highly probable. Septic materials, when introduced into the stomach, are speedily shorn of much of their noxiousness, and the results of such ingesta are as a rule, chiefly local. The gastric juice is the great physiological antiseptic, and constitutes an almost impenetrable barrier to many noxious materials of an organic nature. That simple lactic fermentation is capable of developing a systemic poison of a specific character, I am hardly prepared to believe, and surely, we have very few facts to support such a theory. Fortunately for us, the gastro-intestinal tract is very intolerant of many of the injurious products of fermentation and decomposition, and this intolerance results in their elimination, before they have had an opportunity to act injuriously upon the general nutrition.

In confirmation of his views the author quotes Sir Wm. Gull as stating "that diphtheria may commence locally, forming a poison which will propagate itself," he having consequently come to recognize two distinctive forms of diphtheria.

Now I am under the impression that it is a well recognized fact that diphtheria may commence locally by inoculation, and it is supposed by the majority of observers, that such commencement can occur in no other way. There is, however, no clinical distinction as far as known, between the cases resulting from inoculation, and those from constitutional infection. Gull's theory does not imply inoculation, but a spontaneous development of the diphtheritic poison. This I believe may occur, but in a manner so gradual, that it is extremely difficult to say where a simple process terminates and a specific begins. In accepting this view, however, I can see no grounds for differentiating the disease into two distinct forms. The degree of severity may differ in different cases, but the type of disease remains unaltered. Again, admitting Gull's theory as to the origin of diphtheria to be correct, it is difficult to understand how it can be adduced as evidence in favor of simple lactic fermentation developing scarlatina.

That the noxious vapors and gases of the sewer are capable of producing a variety of diseases, is well known, but it is quite generally accepted that such sewer emanations contain the distinctive germs of these different affections. There would seem to be, however, many peculiar cases which are hardly explicable upon the ground of a specific germ infection, and it is just here that an acceptance of Dr. Griffith's views is almost unavoidable, at least, in so far as his doctrine of the interdependence of the various poisons of disease and their unity of origin in certain instances, is concerned. As before stated, however, I believe that the transformation of the one original poison into a number which affect the human system by the production of various so-called specific disorders, must occur through a gradual process of evolution, and not by a sudden metamorphosis such as must occur if the author's deductions regarding the origin of his cases of scarlatina be correct.

There are many striking facts bearing out the theory of "unity of poison." The close similarity between

certain malarial fevers and typhoid, between typhoid and typhus, and the marked resemblance of a certain febrile condition attended by diarrhœa (which we are so fond of attributing to sewer gas), to typical typhoid, may be explicable from the standpoint of unity. There must be something more than professional stupidity to account for the difficulty experienced in differentiating certain diseases, and which almost brings the diagnosis down to the level of guess work. What peculiar combination of circumstances relating to the atmosphere, constitutional condition or hygienic surroundings of the people, determines the prevailing epidemic influence in any given locality, is unknown, and probably will always remain so.

The possibility of the spontaneous origin of specific disease has ever been a source of controversy, but that such an origin is demonstrable will, I think, be evident to anyone who carefully studies some of the more recent epidemics. The late epidemics of typhus fever in New York are excellent examples, and the preponderance of evidence would seem to show that the epidemic of cholera now declining in France, was due to local causes, and consequent spontaneous development of the disease. It is only by a recognition of the *de novo* origin of diseases of a specific type that modern sanitation can accomplish its object.

A very interesting instance was recently reported in the N. Y. *Med. Record*, by Dr. L. J. W. Lee,[1] which would appear to be strong evidence in favor of the theory of unity. In this instance, among ten cases of disease in one house, variola, varicella, measles, typhoid, and remittent fever were said to be represented. As might be imagined, the theory of unity of poison is not an easy one to support by actual demonstration, *e.g.*, it would be difficult to prove in any given instance, that the emanations from the sewer, did not contain germs derived directly from cases of specific disease.

The theory of unity as I understand it is in nowise opposed to the germ theory, and the same may be said of the theory of the spontaneous origin of specific disease. Each may take as its point of departure, the harmless organisms universally a component of the atmosphere. These organisms, from causes not at present definitely known, but unquestionably by a gradual process of evolution and adaptation to environment, become metamorphosed into poisonous germs, which, when introduced in the human system, will produce disease. An example of this is quoted by Dr. Griffith,[2] from Paget.[3] In this instance, occurring on board a vessel at sea, a sailor wounded his hand with a beef bone, (the condition of the bone is not stated, and there is reason to surmise that it may have been poisonous from decomposition), the injury being followed by fatal cellulitis with axillary suppuration. Subsequently, cellular or erysipelatous inflammation in various forms, ran through the whole ship's company, and terminated in an epidemic of mumps. The whole course of disease was over a month, the ship being at sea the whole time, and during the greater part of it, in the severe cold of a southern winter. Here, the first case in the presence of the crowd poison always present on board ship, afforded a laboratory for the formation of an intensely infectious poison, which in consequence of the intimate relations existing between the members of the ship's company, had no obstacle to its dissemination. Whether the parotitis was the genuine "mumps" or not is questionable. It may have been, in a mild form, the same inflammation of the parotid, which is liable to occur in pyæmia, septic peritonitis (so-called), and other toxæmiæ. A case is cited by Dr. Griffith from his own experience, which, although interesting, is open to the same objections offered to some of his other evidences in favor of "unity of poison." In this case a patient convalescing from typhoid fever suddenly developed symptoms of scarlatina. Cases of true scarlatina, or of scarlatinal sore throat, were present at the time, or had been present in the house. "The cause of the outbreaks was, as far as could be determined, the defective drains." Now, these causes probably did result from the same cause as far as the sewer exhalations were concerned, but, unfortunately, sewer gas is a compound and decidedly complex substance, and in this case, as in others, may have contained the germs of several specific and distinct diseases. I wish that it were possible to accept such evidences of "unity of poison" as indubitable, as it would greatly simplify our studies of etiology. As I have already remarked, I believe it extremely difficult to support the theory by actual demonstration, but, nevertheless, the known facts and powerful evidences of the theory of evolution in general, associated with our knowledge of the germ origin of disease, render the theory of "unity of poison" one of the most logical explanations of the causation and differentiation of disease, yet advanced. I believe, however, that the common origin of the poisons of disease is not a poison, but a harmless microscopic organism.

125 State street, August 5, 1884.

[1] Influence of diathesis upon contagion. N. Y. *Med. Rec.* Vol. xxv, No. v, p. 84.

[2] *Midland Medical Miscellany.*

[3] Paget, Surgical Pathology, 3d Ed. P. 373.

MEDICAL PROGRESS.

OBSTETRICS AND GYNÆCOLOGY.

Massage in Gynæcology.—Dr. Prochownik has recently read a paper on this subject at the Versammlung Deutscher Naturforscher und Aerzte at Magdeburg, a translation of which is given in the *Medical Chronicle*. He refers to the doubt and reserve with which this reintroduction of massage into therapeutics was received, and acknowledges that its results were certainly for a time exaggerated, and that in consequence it fell into the hands of the humbler sort of practitioners and of quack specialists. But already the results of massage in surgery, and even in gynæcology, in the hands of some of the operators by profession, have been so striking that the subject urgently challenges an experimental investigation. As one who has freely used it for two and a quarter

years in gynæcology, he sets forth a number of exactly formulated and easily discussed propositions, viz.:

1. The employment of massage in gynæcological therapeutics aims at the acceleration of the absorption of pathological products, the stimulation of the circulation, the stretching of shrunken and cicatricial tissue, rarely the production of contraction. Parallel with these objects the following diseased conditions come under consideration as the most suitable for treatment by massage, viz.: Transudations, exudations, metritis, subinvolution with loss of tone, cicatricial stricture, and contractions with their resulting conditions, rarely neoplasms.

2. Massage should never be employed except when all other therapeutic agents have failed. Every course of treatment by massage is tedious, often lasting for months, and it is almost always painful. Patients decide more readily to submit to this when other remedies have failed.

3. Another previous condition to the practice of massage is an exact differential diagnosis, the result of careful, combined examination. We must not hesitate to make an examination under an anæsthetic, in order to make the diagnosis clear and definite.

4. Gynæcological massage divides itself into an external and an internal. External massage is very little used, but it is advisable in most courses of treatment to begin with it, if only to test the amount of sensibility. The circumscribed employment of external massage depends upon the fact that only in a small number of patients is it possible by external manipulation to produce any effect upon the organs of the true pelvis, because every kind of massage requires a certain amount of resistance for its efficiency. The employment of massage as a test of sensitiveness is suitable for most patients, but not for all; there are women who are completely intolerant of internal measures, and who cannot bear external manipulation. The mode of employing external massage is almost exclusively by friction, a process which is easier to show than to describe. For gynæcological purposes it may be conducted as follows: The palm of the hand is laid flat, and supported upon the venter of the ilium, the rami of the pubis, the surface of the sacrum, or the psoas muscles; then, while the abdominal muscles are kept as relaxed as possible, with the tips of two or more fingers the operator seeks from the front or from the side to work down upon the part or organ to be influenced, and to draw it against one of the underlying parts, or to press it down upon or against some resisting object.

5. Internal massage divides itself into *active* and *passive*. The active form consists in a process of kneading, of pulling, and pushing, by means of the two hands working together, the fingers of one being placed in the vagina (more rarely in the rectum), of the other on the abdomen. The passive form depends on the introduction of cylinders into the vagina, for the purpose of widening and of stretching the tissues. Active, or "combined massage," is that which has hitherto been most frequently practiced. It consists in kneading the affected part—that is to say, the operator tries from the vagina and abdominal surface to take the part between the fingers, and to rub, and press, and squeeze it. With this process of kneading may be associated a form suitable for gynæcological cases, consisting in pressing and drawing the part in various directions, according to the object to be attained. It is specially efficacious in dealing with cicatricial bands, and often affords better results, with less pain, than the kneading process.

Few women can tolerate the process more than once or twice a day, for from ten to fifteen minutes each time. Apart from the pain, a marked impression is produced upon the nervous system; sexual excitement can easily be avoided, but there is a nervous excitement of quite a different character, which is often produced by gynæcological manipulations, even in the most unimpressionable women. Only the courses of treatment which are regularly and systematically carried out with as few interruptions as possible are followed by any satisfactory result; the performance of the process of active massage only twice or three times a week produces little or no effect; the only means by which active massage can be reduced to two or three sittings a week is by employing passive massage in the intervals. This is similar to that sometimes carried out in the preparation of a patient for the operation of vesico-vaginal fistula when there are cicatrices in the vagina, or in cases of vaginismus. A series of vulcanite cylinders are employed to gradually dilate the parts contracted by cicatrix or spasm.

6. Massage may be advantageously combined with baths or with other therapeutic agents, such as iodine or iodoform.

7. (*a*) An absolute contra-indication is every acute disease, even if it runs its course without fever, and every sub-acute disease which has been accompanied by rise of temperature in its acute stage. In cases of exudation it is a safeguard against mishaps if we make two to three months' absence of fever a condition of employing massage; in the case of hæmatocele we may make a beginning six to eight weeks from its occurrence.

(*b*) Conditional contra-indications are: pregnancy, suspicion of consumption, perhaps latent gonorrhœa. In the first month of pregnancy we may cautiously employ active massage upon painful cicatricial bands. In the later months passsive massage may be used for cicatrices of the vagina from whatever cause. In one case, from a consumptive family, with catarrh of the apices an attack of pleurisy seemed to have been set up by the process. In ten cases undoubted latent gonorrhœa was followed by very painful joint affections, which were associated with slight fever.

Of the results obtained, from July, 1882, to July, 1884, 102 women were treated by massage. In the beginning 16 would not go on with the treatment, from the pain produced and due to the inexperience of the operator. Of the remaining 86, five were cases of new formations—three of these were cases of small intra-ligamentary tumors, two disappeared without any concomitant bad symptoms and with no return. The attempt to aid the gradual enucleation

of submucous fibroids failed in two cases. Thirteen times was massage undertaken for prolapse of the uterus. Only once, in a case of slight prolapse, was a cure effected; twice there was slight improvement. In marked prolapse or in complete procidentia, there was never any kind of improvement. Ten cases of chronic metritis and subinvolution were treated by massage, they were all of specially long duration and obstinacy, so that a complete cure in four cases and improvement in three is a very noteworthy result. Of 18 cases of exudation (including 5 cases of hæmatocele) 8 were completely cured (including 2 of hæmatocele), 2 were relieved to the extent of an entire absence of symptoms, and a less degree of improvement occurred in three. No case was met with in which fresh inflammation was set up in an old exudation, but extreme caution was used in applying massage to exudation cases.

The largest class of cases suitable for massage are the old cicatricial, contracted remnants of exudation, callous cicatricial bands upon a basis of simple inflammation, with the changes in the position of the uterus and ovaries depending upon these conditions. Out of 40 such cases, 24 were cured, and of 10 improved, 8 were in a clinical sense also cured.

It would be foolish to call these results brilliant; it would, however, be a mistake to overlook their value. If we remember that in every case other therapeutic measures had preceded, and when we think how little success we have attained in the cure of old exudations and the dissipation of obstinate cicatricial bands, we must admit that the results here obtained are sufficient to challenge a further trial of massage in gynæcology.

Influence of Age on Primiparous Labor.—As in comparison with the views of Courtade on this subject, given on page 409 of this journal, we append the views of Kleinwächter (*Zeit. f. Geburt u. Gynäk.*, *Practitioner*) who found his material in the records of 920 cases of primiparæ in his clinic at Innsbruck. These cases he divides into three groups, namely: (I.) 16 to 19 years of age, 111 cases; (II.) 20 to 29 years of age, 694 cases; (III.) 30 to 41 years of age, 115 cases. These groups he designated as the young, the middle-aged, and the old, respectively. From his study of these cases he draws the following conclusions: (1.) Accidental complications, which have nothing to do with pregnancy, occur least often in the youngest primiparæ and most frequently in the old. (2.) Ailments attributable to pregnancy are observed most frequently in the old and next most frequently in the young. (3.) Hæmorrhages in the course of pregnancy occur most frequently in the young and least frequently in the old. (4.) The duration of labor is most frequently abnormally protracted in the old; in this respect the young stand next to the old. (5.) Inefficient pains, on account of which the duration of labor is abnormally protracted, are least often observed in primiparæ in the bloom of their sexual life, *i. e.*, from 20 to 29, and most frequently in the old. (6.) Therefore forceps must be used most frequently in the old and least often in the middle-aged. (7.) The lengthening of the labor of primiparæ with the increase of age occurs chiefly in the first stage; the second stage is scarcely affected by differences of age; the third stage is not at all affected. (8.) The mortality per cent. after forceps operations on primiparæ rises parallel with the increase in age. (9.) The older the primipara, the greater is the danger of perineal laceration. (10.) The older the primipara, the more likely a post-partum hæmorrhage, although the frequency of hæmorrhage is by no means so great as hitherto supposed. (11.) With increase of age increases the disposition of primiparæ to affections of the kidneys. (12.) The frequency of œdema without kidney disease also increases with the age. (13.) The older the primipara, the less the danger of mastitis, and the less also the likelihood of her ability to suckle. (14.) The old most frequently, the middle-aged least frequently, sicken and die of puerperal fever; the same is true of puerperal mania. (15.) The morbidity and mortality per cent. is highest in the old and lowest in those from 20 to 29 years of age. (16.) Spontaneous premature labor occurs very frequently in old primiparæ, and least often in the middle-aged. (17.) With increase of age the frequency of abnormal positions of the fœtus increases. (18.) The older the primipara is, the more likely is she to bear a boy, except those from 20 to 21 years of age, who bear more girls than boys. (19.) Analogous to the discovery made by Hecker and confirmed by Wernich, that first-born children are heavier and longer the older the mothers are, is the fact that the umbilical cord of the first-born of old mothers falls off the earliest, and that of the first-born of the youngest mothers the latest. (20.) The liability to twin pregnancy in primiparæ increases with their age. (21.) With increase of age in primiparæ the frequency of bearing deformed children diminishes. (22.) The mortality per cent. of first-born children increases with the mothers' age; among the oldest primiparæ the fœtal mortality reaches a not inconsiderable height.

MEDICINE.

Experiments on Chronic Drunkenness.—During the last three years MM. Dujardin-Beaumetz and Andigé have worked at this subject with a perseverance which has justly gained the approval of men of science in all countries. The animals chosen for experimenting upon were pigs, for these reasons, that it is so easy to make them partake of alcoholic substances in their foods, and also that their digestive organs are very similar to those of human beings. Eighteen of these animals, aged 4 months, were submitted to the same *regime* at Grenille. They were given daily to each kilogramme of their food, weighed out as follows, 1–2 grammes of any one of the following spirits: Ethylic alcohol at 100°, potato spirit ten times rectified at 49°, potato spirit purified by charcoal at 46°, distillery grains at 92°, potatoes at 73°, grains at 37°, beetroot at 34°, spirit of beetroot rectified at 92°, and trade amylic acid at 90°. As long as the dose did not exceed one gramme

there were no difficulties of digestion, but when 1½ to 2 grammes were given the pigs lost their appetite, and their organs became impaired. Thus, it was necessary to suspend the treatment occasionally, to prevent serious results. The symptoms were found to be exactly similar to those of human beings suffering from chronic drunkenness. As regards the digestive functions, there were—loss of appetite, bilious or shiny vomiting, and bloody-mucus diarrhœa. There was also observed anomalous redness of stomachic mucus, occasionally congestion of the intestines, and once or twice violent ecchymoses comparable to the spots to be seen on the intestinal mucus of dogs dying of acute alcohol. These gastro-intestinal anatomical symptoms were much less marked than the functional troubles. The bilious secretion was also abnormal, as was proved by the yellow color of the conjunctivæ and urine, but in the autopsy the congestion of the liver and the friability of the parenchyma were only observed during the complete absence of interstitial hepatitis and acidity. The urine was little changed, only presenting a bilious appearance. The renal tissue was greasy, but this is very common among pigs. Nearly all the pigs suffered from a cough, and at the autopsy the lungs were shown to be congested, and sometimes in an apoplectic condition; the former was caused by the elimination of alcohol by the air tubules, and by the cold during the experiments. The organs of circulation were unaltered. The modifications of the nervous system were shown by drunkenness, the animals falling into a torpor soon after digesting the alcohol, but the ordinary excitement was not visible. After a time trembling was noticed, and want of strength in the limbs. The experiments, however, did not interfere with the fattening of the animals, but their sale for food was prohibited, as there existed in the flesh interstitial hæmorrhage of the muscular parenchyma.—*The Medical Press.*

THE DIFFERENTIAL DIAGNOSIS OF AMBLYOPIA.—M. Danir (*Bulletin de la Société Francaise d' Ophthalmologie; Med. Times*) finds that in the normal state, and in amblyopia without any lesion, a luminous impression is produced on the eye by the closure of an electric current of less intensity than one-tenth of a milli-ampère, whilst in cases where the optic nerve is undergoing atrophy, a current of much greater intensity is needed to produce the same minimum luminous impression. It was especially in respect of prognosis that he found this test the most useful. When, in a case of amblyopia, whether the disc was pale or not, the electrical reaction was normal, he found that the sight was eventually recovered; and, on the other hand, when the electrical reaction was diminished, then the prognosis as to recovery of sight was unfavorable. The *modus operandi* is simple. The positive pole is placed on the forehead, midway between the eyes, and maintained there by an india-rubber band; the negative pole, which is olive-shaped, is made to touch the upper and outer part of the eyeball. The circuit is then completed, and a sufficiently strong current passed to produce a very evident luminous impression, in order that there may be no mistake, and the patient may understand what it is that he is to be on the lookout for. When this has been explained to him, the strength of the current is very gradually diminished until only at the closure of the current there is perceived the very faintest spark, which is not recognized at the opening. In health it is, as has been already stated, only necessary to employ a current of the intensity of one-tenth of a milli-ampère to obtain this, and this serves as the standard whereby to measure various degrees of impairment. In optic atrophy, sclerosis of the optic nerves, atrophy after neuritis, after embolism or hæmorrhage, the electric spark is only produced by a stronger current. In amblyopia from alcohol or tobacco the electrical reaction is normal, as it also is in congenital amblyopia and in some cases of hysterical amblyopia.

SURGERY.

ECHINOCOCCUS OF THE NECK.—Dr. Lindpainter, of Munich, reports a case of the above in the late *Festschrift des Arztlichen Verein*, (*The Medical Press.*) The patient had noticed an enlargement of the neck, principally on the left side, from his earliest youth. About ten years ago, after forced yawning it increased rapidly in size, so that a considerable tumor developed behind the sterno-cleido-mastoid muscle, which caused difficulty of breathing, and was diagnosticated by various physicians as struma. On August 20, 1882, Dr. Lindpainter was called to perform the operation of tracheotomy on account of the difficulty in breathing. He found on the left side of the neck a tumor the size of a man's fist, reaching from the clavicle to the ear. The trachea was forced over to the right, and flexed, so that respiration was exceedingly difficult, and the œsophagus was also so much compressed that fluids even could only be swallowed with difficulty. Dr. Lindpainter took the tumor for a solid struma, calling for tracheotomy, but upon examining more closely he discovered in a small spot above the clavicle distinct fluctuation. After puncture and the evacuation of about three ccm. of clear watery fluid, fluctuation was noted in another part; he punctured this also, and let out about 5 ccm. of similar fluid, after which the trachea straightened itself, and the breathing at once became easy. Examination of the escaped fluid showed the presence of hooklets, and the only further question was the extirpation of the echinococcus. He determined upon incision and drainage. He accordingly incised and inserted a drain on September 2, and in the beginning of December, as no more cysts by that time appeared, the drainage-tube was removed, and in a day or two the wound healed, and at the date of the report the neck appeared quite well.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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THE USEFULNESS OF THE NOSE IN DIAGNOSIS.—Probably every physician sees times in his examination of patients, when he devoutly wishes he had no olfactory nerves, or, since to be deprived of the sense of smell would at the same time also deprive him of the possibility of certain keen enjoyments, he prays for that happy condition of the farmer, who, when asked by a young theologian, if he objected to his saying grace at the table, replied, "Oh, no! say what you have a mind to, you can't turn my stomach." Unpleasant as the possession of a nose often is, there are occasions when its delicate appreciation of odors is fortunate. Nay, furthermore, it seems sometimes serviceable in guiding a physician to a correct diagnosis. All are familiar with the fetor of the air expired in cases of pulmonary gangrene. Likewise, the breath of patients suffering from chronic copper and lead poisoning has a foul, strongly suggestive smell.

A peculiar smell of the breath in other diseases has been repeatedly noted by trustworthy observers. Thus, a urinous odor has been detected in the breath of patients suffering from retention of urea in the system from renal disease. The act of coition is stated by a German whose name we cannot recall, to impart a very characteristic odor to the breath. It is needless to allude to disordered stomachs and constipated bowels, bronchorrhœa, decayed teeth, nasal catarrh, and numberless other conditions familiar to every physician, as productive of a foul breath that often leads to a diagnosis upon the very entrance of a patient into the consulting office.

The fetor of uterine cancer is so proverbial that its very mention seems superfluous. *Apropos* of this offensive smell, Dr. Middleton Goldsmith, of Rutland, Vt., in a contribution to the New York *Medical Record*, Nov. 29, 1884, entitled, "Some New Facts and Considerations in the Diagnosis of Cancer of the Stomach and Cancer of the Pancreas," cites a case in which the eructations emitted a fetor identical with that of carcinoma uteri. Gastric symptoms usually met with in cancer of the stomach were not marked, though a pronounced cachexia was present. The autopsy revealed an encephaloid cancer involving almost the entire stomach. Upon being accidentally torn into, the organ emitted an overpowering stench identical with that having distinguished the eructations in life. Dr. Goldsmith says this fetor is not invariably present, but that, when it obtains, it may be regarded as pathognomonic of gastric cancer. The fact is well worth remembering.

Peculiar odors do not proceed exclusively from mucous membranes, the skin sometimes emits an unnatural smell in disease.

A pungent mice-like odor is said to be characteristic of typhus.

A sour smell is sometimes perceived to proceed from persons ill with acute articular rheumatism. We do not recall any reference in medical literature, to a singular odor of the perspiration sometimes encountered in phthisical patients. But we recollect vividly two instances in which we were struck by this peculiarity. The first case was that of a man who had a very extensive consolidation of both apices.

The odor did not impress us specially, until a few minutes afterward upon approaching another patient, already stripped for examination, when the same odor met us, surrounding the man like a cloud. At once, without considering the rashness of the statement, we exclaimed to those about, this is a case of chronic consolidation of the lungs. Luckily the examination sustained the diagnosis. In these instances, the odor could not have been due to the medicines taken, as these were devoid of special scent. Whether there be anything in this or not, peculiar odors associated with some diseases are so well established as to render the nose of the diagnostician anything but superfluous.

SECTION of Practice of Medicine and Materia Medica of the American Medical Association:

The Chairman of this Section earnestly requests all who intend to present papers in it during the coming meeting in New Orleans, to forward the titles and

table of contents of such papers to Dr. H. D. Didama, Chairman, Syracuse, N. Y., or to Dr. Garland, Secretary, Hotel Aubery, Boston, Mass., as early as possible, that they may aid the Committee of Arrangements in having the full programme printed and ready for the use of members who may attend the meeting in New Orleans.

The same thing is desirable in reference to all who expect to read or present papers in any of the Sections of the Association.

The Chairman or Secretary of the Section to which the paper would belong should be notified of the title and contents of the paper as early as possible; and the officers of all the Sections should report to the Chairman of the Committee of Arrangements at least one month before the time of the annual meeting. We urge attention to this now, because heretofore the Chairman of the Committee of Arrangements has been embarrassed and delayed every year, in making up and printing the programme of work for the annual meeting, on account of the neglect of writers to give proper and timely notice of their intention to present papers.

CHOLERA BACILLI.—The statements in regard to the effects of this micro-organism are as variable or contradictory as ever.

While Dr. E. Van Ermengen in his communication to the Microscopical Society of Belgium claims to have successfully inoculated dogs, rabbits and guinea-pigs with the cultivated comma-bacilli, Dr. Klein has swallowed liberal doses of bacilli in pure culture, and Dr. Bochefontaine, chief of Vulpian's laboratory, has himself taken a drachm of the intestinal discharge from a cholera patient in the form of pills, both without any effect.

LIST OF PERMANENT MEMBERS OF THE AMERICAN MEDICAL ASSOCIATION.—A by-law or standing rule of the Association requires that a full list of the Permanent Members shall be published in the Transactions every third year. In complying with this rule it will be necessary to occupy the next number of the JOURNAL, which will be the closing one of the third volume, almost wholly with the said list of members, the Librarian's Annual Catalogue of additions to the Library, and the title page with full index of the volume.

COCAINE HYDROCHLORATE.—Under the head of Foreign Correspondence will be found an interesting letter on this and other preparations derived from the coca leaves.

THE CHOLERA appears to have entirely disappeared from France with the exception of Toulon, and the disease lingers in only a few places in Italy.

A NATIONAL BOARD OF HEALTH.—Our readers will remember that a National Conference of State Boards of Health was held in St. Louis during the recent meeting of the American Public Health Association in that city, in which measures were taken to influence the action of Congress in favor of the reëstablishment of a National Board of Health. The members of the Conference appointed to further this object were to reassemble in Washington soon after the opening of the present session of Congress. We are informed that there were present at this last Conference delegates from twenty-five States, and forty principal cities of the United States and Canada. The result has been the preparation of the following bill and its presentation to the Committee on Public Health, by whom it is expected the same will be brought before the two houses of Congress. The bill is as follows:

A BILL.

To amend an Act entitled "An act to prevent the introduction of contagious and infectious diseases into the United States and to establish a National Board of Health."

Be it enacted by the Senate and House of Representatives of the United States of America in Congres assembled, That an Act entitled, "An act to prevent the introduction of contagious and infectious diseases into the United States and to establish a National Board of Health," approved March 3, 1879, be so amended as to provide that there shall be established a National Board of Health, to consist of one member from each State Board of Health now established, or which may be hereafter established in the United States, to be appointed by the President and confirmed by the Senate, whose compensation when actually engaged in the performance of duty under this act, shall be ten dollars per diem each, and reasonable expenses. This board shall meet in Washington within ninety days after the passage of this Act, and shall meet in Washington annually, and in case of emergency upon the call of its chairman and secretary, or upon the extraordinary call of the President of the United States, as hereinafter provided.

The officers of this board shall be a chairman and secretary. The Secretary shall be the executive officer of and ex officio a member of the board, and shall devote his entire time to the duties of the office, and may be removed for cause, at any regular meeting of the board, two-thirds of the full board voting therefor, and shall receive such salary as may be determined by the board. The chairman with six other members, representing the various geographical divisions of the country, shall constitute the executive committee of the board, to be elected at the first meeting of the board, and at each annual meeting thereafter, and said committee shall, and is hereby authorized to exercise such powers as may from time to time be conferred upon it by the board.

SEC. 2. The duties of this board shall be, and it is hereby authorized and given power to make or cause

to be made, such investigations at any place within the United States, or at any foreign port or place, and to collect information upon all matters relating to the public health, and to frame such rules and regulations as may be necessary for the government of the quarantine service of the United States; and all the power and authority now provided by law, or which may be provided by law, for the control and protection of the public health of the United States, shall be and are hereby vested in said board, except as to the special authority vested in the President of the United States under the provisions of this act. The rules and regulations of this board shall severally be executed, under the direction of this board, through such Departments of the Government, or other officers, as the law may prescribe or the President may designate.

This board shall coöperate with, and so far as it lawfully may, shall aid State and local boards of health in the enforcement of the rules and regulations of such boards, to prevent the introduction of contagious and infectious diseases from foreign countries into the United States, and into one State from another.

SEC. 3. It shall be the duty of this board to make such rules and regulations as are necessary to be observed by vessels at ports of departure, where such vessels sail from any foreign port or place to any port or place in the United States to secure the best sanitary condition of such vessel, her cargo, passengers and crew, and to prepare from time to time for the consular officers of the United States, and for the medical officers serving under this act at any foreign port, and otherwise make publicly known such rules and regulations, which, when approved by the President and issued by the Department of State, and posted in the office of the consul or other representatives of the United States at such foreign ports for at least ten days, shall be enforced by the consular officers and agents of the United States.

SEC. 4. It shall be unlawful for any vessel from any foreign port or place to enter any port in the United States, except in accordance with the rules and regulations made in pursuance of this act, and of the rules and regulations made under State or municipal authority, and any such vessel which shall attempt to enter any port of the United States in violation thereof, shall be liable to process in the proper district court of the United States, and upon conviction, shall forfeit to the United States a sum to be awarded in the discretion of the court, not exceeding $1,000, which shall be a lien upon such vessel to be recovered upon proceeding in the proper district court of the United States, in accordance with the rules and laws governing cases of seizure of vessels for violation of the revenue laws, and in all such cases the United States attorney for such district shall appear on behalf of the United States; and all such vessels shall obtain from the consular or authorized medical officer at the port of departure, a certificate in duplicate, setting forth the sanitary history of said vessel, and that it has in all respects complied with the rules and regulations of this board, made in pursuance of this act for the government of such vessels, and before granting such certificate such consular or medical officer is required to be satisfied that the statements therein made are true; and upon the request of this board, the President of the United States is hereby authorized to appoint proper medical officers, to serve in the offices of the consuls at any such foreign ports, to make the inspections and give the certificate herein required.

SEC. 5. Such vessels shall observe all rules and regulations made by this board in pursuance of this act, in regard to the inspection, disinfection and isolation of the same, upon its arrival at any port in the United States and for the treatment of persons and cargo on board, so as to prevent the introduction of contagious diseases into the United States, and it shall be unlawful for any vessel to enter such port, to land its passengers or discharge its cargo except upon a certificate from the health officer of such port, that such rules and regulations have in all respects been complied with.

SEC. 6. In the event of any sudden emergency, threatening the importation of contagious or infectious disease into the United States from any foreign country, the President of the United States is hereby authorized and required, in his discretion, to adopt and make known forthwith by public proclamation, such measures as may meet the emergency, either by suspending the introduction into the United States by land or sea, of any specified merchandise calculated to be a vehicle for the communication of contagion, or by prohibiting the entry into the ports of the United States of vessels coming from infected countries or having contagious or infectious disease on board. And in case the President shall at any time exercise the authority hereby conferred upon him, he shall, at or before the time of issuing such proclamation as aforesaid, convene the National Board of Health, to meet at Washington in special session within ten days from the date of such notice of convention, and the said board shall thereupon advise such measures as it may deem sufficient to meet the emergency; and upon the taking effect of such measures, with the approval of the President of the United States as herein provided, the President's proclamation aforesaid shall cease to have effect. It shall be the duty of this Board at all times to give prompt attention to any question in sanitary science which may be submitted to it by the President.

SEC. 7. It shall be the duty of the Department of State, to obtain from the consular officers at foreign ports or places, all available information in regard to the sanitary condition of such ports and places, and to transmit the same to this board; and it shall be the duty of this board to obtain from the State and municipal health authorities throughout the United States, and from all other available sources, weekly reports of the sanitary condition of ports and places within the United States, and reports and other matters relating to climatic and other conditions affecting the public health, and it shall prepare, publish and transmit to State and other authorities, and other proper persons, weekly abstracts of such reports, consular reports, and other useful information relating to the public health; and it shall make to the President,

for transmission to Congress, an annual report of its transactions, with such recommendations as it may deem important to the public health; and the necessary printing of the board shall be done at the Government Printing Office, upon the requisition of the secretary of such board, in the same manner and subject to the same provisions as other public printing for the several Departments of the Government.

SEC. 8. The President of the United States is authorized, when requested by this board, and when the same can be done without prejudice to the public service, to detail officers from the several Departments of the Government, for temporary duty, to act under the direction of this board in carrying out the provisions of this act, and such officers shall receive no additional compensation, except for actual and necessary expenses incurred in the performance of such duties.

SEC. 9. To meet the expenses incurred in carrying out the provisions of this act, the sum of $500,000, or so much thereof as may be necessary, is hereby appropriated, to be disbursed under the direction of the board; and the board shall have authority to appoint such disbursing agents as it deems necessary, who shall give bond as in other cases, for the faithful performance of their duties.

SEC. 10. All acts and parts of acts in conflict with any of the provisions of this act shall be, and are hereby, repealed.

Assuming that there should be some responsible and efficient national health organization, as an aid to the Government in preventing the introduction and spread of infectious and contagious diseases, it becomes a very important question whether such organization should consist of a National Board composed of one member from each State in the Union, as proposed in the above bill, or of a regular Government Bureau of Health, with a single responsible medical man at its head, on the same basis as the Bureau of Education, or of Agriculture, as was advocated by Dr. D. J. Roberts in his address as Chairman of the Section of Hygiene and State Medicine of the American Medical Association at its meeting in May last. We trust the whole subject will receive a full and impartial consideration both by Congress and the medical profession.

SOCIETY PROCEEDINGS.

CHICAGO MEDICAL SOCIETY.

At the semi-monthly meeting held on the evening of December 1, 1884, the regular order of scientific and other important business was upon motion, temporarily suspended, and the following appropriate remarks and resolutions of respect relative to the death of Dr. Abram Groesbeck, an old and well-known physician and Fellow of the Society whose demise occurred November 25, 1884, at the age of 74 years, 7 months and 15 days, were introduced by Dr. R. C. Hamill and unanimously adopted.

LISTON H. MONTGOMERY, M.D.,
Secretary.

MR. PRESIDENT AND FELLOW MEMBERS OF THE CHICAGO MEDICAL SOCIETY:—I arise to offer a tribute of respect to the memory of a beloved member of this Society, who in the Providence of God, has been suddenly summoned from our midst to appear at the council chamber of the Great Physician.

Death has made many reprisals from the ranks of our profession in these last years. Some who had just entered the portals of professional life, with bright prospects of eminent success in full view, have been cut off in the very flower of their days—others in the vigor and maturity of their years manfully bearing their part in the battle of life have fallen in full clad armor in the front ranks—but he to whom I call your attention to-night, had more than filled his cycle of three score years and ten, and a half century of that time has been devoted to professional services at the bedside of the sick and suffering.

"The leaves of the oak and willow shall fade,
Be scattered around and together be laid;
And the young and the old, and the low and the high,
Shall moulder to dust and together shall lie."

* * * * *

"The hand of the King that the sceptre hath borne,
The brow of the Priest that the mitre had worn;
The eye of the Sage and the heart of the brave,
Are hidden and lost in the depth of the grave."

Dr. Abram Groesbeck was no common man, but a learned and scientific Doctor of Medicine, and a man of decided character, as Fellows present, who have had a more intimate association with him than has been my fortune, in the remarks that are to follow, I am sure will take great pleasure in declaring.

He lived a life of usefulness, and the world is better for such living—he died in the fullness of his years, his intellect unclouded and his love for the literature of the profession as ardent as in the vigor of his days, an honor to the cause to which the energies of a well spent life had been devoted, respected by his fellow practitioners, revered and affectionately beloved by the families who for so many years have enjoyed the benefits of his professional skill.

WHEREAS, This Association is called to mourn the loss of one of its beloved members, who, for more than a quarter of a century, has lived the life of an honorable and successful physician in our city;

Resolved, That we contemplate with great pleasure the well-rounded character of Dr. Abram Groesbeck, who has so faithfully filled the measure of a true American physician, and commend his example as a Christian and a physician to those of our number who are entering upon the arduous and responsible duties of our profession. We regret that we are called upon to part with him forever—that we shall meet him no more at the bedside of suffering—in the social circle or in the busy walks of daily life.

Resolved, That whilst we regret to note upon the records of our Society the demise of our greatly respected fellow, yet it is with pleasure we contemplate the fact, that up to the final summons, his men-

tal faculties remained in full strength, and that he was able to contemplate with perfect calmness the approaching catastrophe, saying in that prompt and decisive manner so characteristic of him: "I have accomplished my mission here, and it is better to go now, than suffer the pains and aches incident to extreme age."

Resolved, That we admire the learned and gentlemanly physician, and cherish the example he left us as a rich inheritance, and claim the privilege of dropping a tear of sincere sympathy with the bereaved family, in this, the day of their sorrow.

Resolved, That a copy of these resolutions be sent to the family of the deceased by the Secretary of this Society.

Dr. John Bartlett spoke as follows:

Mr. President: I desire to say a few words in memoriam of the friend and fellow from whom death has just separated us.

Dr. Abram Groesbeck was born at Albany, N. Y., May 24, 1810. He began his medical studies in his native city, becoming a Licentiate of the New York State Medical Society in 1831, and graduating at Albany in 1849. He settled in Chicago in 1856, and continued to practice medicine actively till a few years since, retiring only when he was no longer able to see to write a prescription. It was a circumstance which rendered the very last days of his life happier that "loosed from his environment" in part, as he was by impairment of sight and hearing, and other infirmities, he yet had a few patients to visit. For some years past symptoms of angina pectoris had developed, and two months since he had a violent attack, from which, however, he recovered, and he was in his usual health till the 24th ult., when he was taken without pain with Cheyne-Stoke's respiration, the period of apnœa alternating with rapid breathing each minute. Meanwhile the action of the heart grew feebler for eighteen hours, when unconsciousness supervened, soon followed by death. Dr. Groesbeck was fully aware of his condition, and yet he spoke cheerily to all, not omitting jocosely to rally the profession upon its want of understanding of, and lack of cure for, his ailment. The doctor expressed himself as prepared and willing to depart this life, declaring that his work was done.

He was a member of the Episcopal Church.

Dr. Groesbeck had a tall and graceful figure and a fine face. His features strikingly resembled those of the late Dr. Gross. In manner he was a gentleman of the old school—genial, courteous, amiable. He was of a kindly spirit and benevolent disposition, his most prominent characteristic being sacrifice of self for the advantage of others.

Dr. Groesbeck was endowed with a superior intellect. He received a classical education which led to an appreciation of good literature and the cultivation of excellent taste for the best writers, ancient and modern. His familiarity with the classics he retained in a remarkable degree. It was one of his amusements to confound a friend by leaving his compliments and message on his slate in the language of Celsus. He retained also his knowledge of the French. Even in the last months of his life he selected for reading such writings as those of Tacitus; and only recently he planned to have read to him again the Æneid of Virgil. It gave him great pleasure to exalt the matter and style of the ancients, and to credit them with knowledge, philosophy and rhetorical skill. He liked to dwell among the old moderns, and read with deep interest such works as Pepy's Diary. On one occasion he insisted on leading a medical friend into the Public Library, that he might there read how the physician of one of his favorite old diarists successfully prescribed, hundreds of years ago, milk diet as a cure for diseases of the kidney. Of late years the doctor had been more interested in religious works, as in "Sceptical Fallacies," by W. J. Hall; and in the volume of Henry Drummond, "Natural Law in the Spiritual World." The latter production he pronounced remarkable.

"One of the saddest reflections of my later years," said recently one of the ablest of Chicago's medical men, "is that the many minor means and arts which experience has given me for the cure of disease and the relief of suffering will perish with me." Dr. Groesbeck was an old and skillful practitioner, and yet, so far as I am aware, he has left no record of his experience. It occurs to me as proper here to note a few of the views, which memory now recalls, held by him as the sum of his experience in certain departments of practice. However opposed the views of the doctor may prove to those commonly promulgated by the professional teacher, it is well to grant due weight to the opinions of so experienced and sagacious a practitioner. The doctor was by nature sceptical, and he was ever on his guard lest he might lend credence to some view not thoroughly established. While interested in theory, he was, preferring methods of true empiricism, loth to acknowledge its value. To the enthusiastic germ theorist who might occupy his attention with ingenious possibilities as to the cause of disease, he was ever ready with his chilling query, "*cui bono?*" Long before the German cry "*Fort mit der spray,*" was heard over the land, Dr. Groesbeck, when invited to witness an ovariotomy, satirically inquired, "Are they to *play* with the spray?" Dr. Groesbeck often declared himself a disciple of Dr. Todd of London, and for years past had treated pneumonia not as a phlegmasia, but as a form of fever; in some cases giving a bottle of wine in twenty-four hours with apparent advantage. Even the statistical information, furnished since the death of Dr. Todd, adverse to his ideas as to the value of the stimulant treatment, did not change the opinion or practice of Dr. Groesbeck.

Dr. Groesbeck had ever before him in the practice of his profession the strong influence of the mind over the body of the sick. He deemed it a part of the skill of the physician to protect his patient from anxieties and fear. His manner and converse in the sick-room, therefore, were such as to inspire hope and courage in those under his care. It may be stated that Dr. Groesbeck deemed it in practice the part of wisdom to avoid suggesting a consultation; and this, on the ground that it diminished the confidence of the patient in his attendant, and with confidence

shaken, no small part of the power of treatment for good he believed to be lost.

For a number of years past the doctor was afflicted with a degree of deafness precluding anything like satisfactory auscultation. It was remarkable how little this circumstance lessened his confidence in diagnosing diseases of the chest. He trusted entirely to acute observation, and shrewd interpretation of the ordinary symptoms.

The doctor looked upon the placenta blocking the os uteri or vagina after labor as a natural and most useful tampon, and he regarded too early an interference with it as a mischievous interruption of nature in her efforts to close and occlude the uterine vessels. Naturally he agreed with Braithwaite, that in certain conditions of hæmorrhage after labor, the uterus being contracted, to tampon was good practice; and he went so far as to suggest that probably in such cases the re-introduced placenta might be the best plug that the accoucheur could employ. The doctor had for nearly forty years of his practice an unusual number of cases of post-partum hæmorrhage. He had meantime conducted the third stage of labor according to the standard precepts of the day. Of late years he had fewer cases of hæmorrhage, and he referred the change in his experience to a change in his practice. As an almost invariable rule he had during the first decades of his work given ergot immediately after the birth of the child. It was following a discontinuance of this practice that the comparative freedom from post-partum bleeding occurred.

In placenta prævia centralis Dr. Groesbeck believed that perforation of placenta gave as good results as the passing of the hand between it and the uterus, and he regarded the former method as easier, and more speedy than the latter. When under any circumstances turning had been resorted to, Dr. Groesbeck delivered promptly, impressing on the child the necessary turns, and never waiting for nature to do so. In breech presentations the doctor thought it better practice to break the wedge as soon as the os was sufficiently dilated, bringing down both feet and delivering at once.

The doctor was an advocate of the rather frequent use of the forceps, using the old model Bedford for higher operations. When the head was lower in the pelvis he used the short forceps, always speaking highly of their convenience and efficiency. It should be remarked, however, that in the selection of the short instrument, Dr. Groesbeck rejected those in the construction of which the maker, in shortening the handles, shortened also the cephalic curve.

Dr. Groesbeck fully endorsed the views of the anatomy of the cervix uteri gravidi held by Braune, Bandl, Barnes and others. He believed that the placenta prævia was located below the os internum.

The doctor was possessed of an unusual degree of candor and was entirely void of professional pretense. He often admitted his shortcomings; thus, he did not hesitate to state that the mechanism of labor as regards the mutations of the fœtal head in passing the parturient canal were to him inexplicable. He declared that he was generally unable to determine the position of the head, and that the reputed "planes and spines" effecting changes in it were to him a "terra incognita."

His favorite obstetrical work was "The Principles of Midwifery, by John Burns." In the preference here indicated our colleague complimented his own judgment as well as the classical production of the Glasgow professor.

The doctor had a keen appreciation of the ways and means which tact and experience teach as aids to success in practice. In a knowledge of the subtle methods by which a physician may ingratiate himself with the people, magnify his importance, and obtain and retain practice, Dr. Groesbeck was not second to the author of "The Physician Himself." But while he was prodigal of advice in such matters to others, he took, in his own conduct, little heed of his own wisdom.

After he had been in the profession half a century he felt less confident that he would in any case do all that was possible for a patient than he had felt fifty years before. He on one occasion expressed surprise at the recollection of the nonchalant unconcern with which as a novice he had undertaken the management of an adherent placenta or placenta prævia.

As to the profession as a business, Dr. Groesbeck held an opinion contrary to that of the great mass of practitioners. He always insisted that the practice of medicine was upon the whole as easy and as pleasant a mode of earning a livelihood as any of which he had knowledge.

Dr. Groesbeck felt a fatherly interest in the younger members of the profession, and never tired of stimulating their thought and enlarging their knowledge by the narration of instructive cases and the enunciation of cardinal precepts.

Mr. President: From the shores of the mystical river we call to our vanishing friend the final word of mortals: Vale! Vale! An adieu laden with uncertainty, yet buoyant with hope. As we turn from the dark waters to the duties yet before us, let us pause to inscribe our index memorabilium with the honorable name of Abram Groesbeck.

FOREIGN CORRESPONDENCE.

COCAINE.

WIESBADEN, GERMANY, Dec. 1, 1884.

Mr. Editor:

E. Merck, the celebrated pharmaceutist of Darmstadt, has kindly furnished me with the following items in regard to the now famous remedy—cocaine.

The chemical formula according to Lossen is: $C_{17}\ H_{24}\ NO_4$. Cocaine is the alkaloid contained in the coca leaves (Erythoxylon Coca Lam) which was first isolated by Niemann. In 1862, Lossen discovered a second principle contained in the same leaves, viz.: hygein, which is of a volatile nature, and has received but little investigation so far; it seems to have a weak and hardly characteristic action. The leaves further contain ecgonin, coca tannin and a peculiar wax.

The coca crystals belong to the monocline system, melt at 98° C., easily soluble in alcohol, more easily

in ether, but only dissolve in 704 parts water. The cocaine *salts*, however, are easily soluble in water.

The first reports of the internal use of coca leaves are handed down from the sixteenth century (Dr. Monardes, Seville, 1569). Its first appearance in Europe dates from 1749—it was described by Jussieu, and was named erythoxylon coca by Lamarck. Tschudi, Markham, Poppig and others who travelled in South America, found that the natives were in the habit of chewing coca leaves as a remedy for or preventive against the effects of extraordinary exertions. It seems, however, that the Indians chewed the leaves, together with the ashes of chenopodium. Quinea, the alkali in these ashes, probably eliminated the tannin from the coca leaves, leaving free the alkaloid.

Cocaine is believed to be the really active principle of the coca leaves. At first, on apparently good grounds, it was believed that this alkaloid possessed a property analogous to caffeine, theine and theobromine, viz.: the checking of waste in the body, but Merck declares it impossible to absolutely confirm this theory. Only the other day I saw it in the same list with guarana, caffeine, theine, etc., but was not considered to be as powerful as caffeine!

Cocaine has in small doses an exhilarating effect on the nerve centres, and it takes but a very small dose to produce toxic effects, especially in cold-blooded animals, but fortunately the effects of the drug do not seem to be cumulative. Schroff, who first experimented with cocaine in 1862, observed that 0.05 grm. given internally to rabbits caused great variation in the pulse and respiration, also temporary mydriasis; the same dose, subcutaneously, caused death in convulsions of an epileptic form, also mydriasis in a strong degree, which disappeared at once after death. In frogs 0.001 grm. produced complete loss of motion, preceded by excitement, while a dose of 0.002 grm. proved fatal.

According to Fronmüller, in 1863, a dose of 0.03—0.33 grm. given internally did not have any important effect upon human beings, simply causing sleep in some, accelerated and then retarded pulse and respiration in others. In a case of attempted suicide 1.5 grams produced no serious injury. Explanatory of this Mr. Merck suggests that the so-called cocaine of that time may not have been really pure cocaine. The preparation with which experiments have been and are being made on this side is Merck's cocaine murias sol. and the dose is 0.05 grm.; however, as much as 0.5 grm. of this solution has been administered subcutaneously. The effects of a subcutaneous injection are first a feeling of warmth, then an insensibility to feeling in the neighborhood of the part, and finally a reddening of the skin. In thirty minutes' time these all disappear.

Dr. Aschenbrandt has found in cocaine an admirable restorative from the exhaustion of diarrhœa, as stated in No. 50 of the *Deutsche Medicin. Wochenschr.*, 1883. Prof. Dr. E. V. Fleischel, of Vienna, has proved, to his own satisfaction at least, that cocaine subcutaneously administered is a valuable aid in preventing and curing the morphia habit. (I myself have had excellent results from it with tobacco chewers who were anxious to break the habit.) In America, W. H. Bently observed the good effects of cocaine in overcoming the taste for morphia. Dr. Freud, of the Vienna General Hospital, reports a case of the morphia habit cured within ten days by the use of 0.1 grm. injected subcutaneously three times daily. His theory is that morphia and cocaine are antagonistic. Dr. Freud likewise credits this alkaloid with aphrodisiac properties.

According to the experiments collected by Merck, the therapeutical value of cocaine may be thus described: Cocaine is a stimulant which quickly increases and serves to sustain, in a harmless manner, the physical powers of the body; it is much more strengthening than alcohol—hence its value on all occasions of extraordinary bodily exertion—in doses of 0.05 grm. at intervals. Whether the powers of the mind can likewise be increased and strengthened is still unknown, as also whether the activity of the nerve centres can be permanently increased. Some good results have been obtained in the treatment of melancholia by the subcutaneous method. It is valuable as a stomachic, particularly after a debauch in eating or drinking. It is credited with the permanent cure of atonic indigestion. The various cachexias, phthisis, exhausting fevers, mercurial poisoning, etc., are said to be averted by its use. Its value in dipsomania is not so well established as in the morphia habit, though there are many satisfactory experiments in that direction. As is well known, cocaine paralyzes the sensation of the mucous membrane when brought in contact with the membrane; hence its possible future in diseases of the throat, and in operations about the mouth and throat. (I have not seen any account of experiments of others, but I am making some observations and trials in regard to the use of the drug subcutaneously in perineorrhaphy and trachelorrhaphy. It will be a happy day for surgeons if these minor operations can be done without ether.)

Of its ophthalmological value enough has already been said.

Cocaine citras is used by dentists to anæsthetize the dental nerves. Mr. Merck tells me that this salt can be readily kneaded into pills, which may be wrapped in wadding, moistened and placed in the hollow of the tooth, when lo! the tooth can then be cleaned and filled without pain. If this be true, the man who discovered it is worthy of a high place among the benefactors of the race.

Merck's preparations include the pure cocaine alkaloid, also the salts, viz.: Hydrochlorate, salicylate, hydrobromate, tartrate and citrate. The experiments mentioned above have been made with the hydrochlorate in about 0.05 gramme doses. Von Hoffman, of Baden-Baden, recommends the salicylate for ophthalmological use, but Merck observes that it still remains to be seen which salt is the best for the eye. Finally, cocaine is not a simple substance. When treated with concentrated hydrochloric acid, it splits up into ecgonin, benzoic acid, and methyl alcohol. Mr. Merck informs me that he hopes to be able ere long to report on the physiological action of ecgonin.

That your readers may possibly be as much interested in this subject as I am, is my only apology for thus intruding upon your valuable space.

Very sincerely yours,

SARAH HACKETT STEVENSON, M.D.

BOOK REVIEWS.

COURIER REVIEW CALL BOOK. J. H. Chambers & Co., Chicago, St. Louis and Atlanta.

PHYSICIANS' POCKET DAY BOOK. By C. H. LEONARD, Detroit.

THE 1885 MEDICAL RECORD VISITING LIST. Wm. Wood & Co., N. Y.

THE PHYSICIAN'S VISITING LIST. P. Blakiston, Son & Co., Philadelphia.

The character of these books is too well known to need comment. They are all excellent for the purpose for which they were intended. They are well bound, and in every way convenient.

MISCELLANEOUS.

COMFORTS FOR TRAVELLING INVALIDS.

An article on Winter Health Resorts, in the *Practitioner*, contains some valuable hints to invalids, to relieve the discomforts found by them abroad in travelling and at hotels. One of the discomforts of the long railway journey which is required in order to reach most health resorts, is the constant vibration and the fatigue it occasions. This may be, to a considerable extent, avoided by the proper use of air cushions. It is well for an invalid to be provided with two or more of these. The one to be used for sitting on may be either round or square, and may be either with or without a depression in the centre. Air cushions of a horseshoe shape and furnished at the ends with tapes so that they can be opened out, and again tied together, are most useful. One of them tied round the loins supports the back, and another just like a collar round the neck supports the head, so that in whatever position it is put, sideways, backwards, or forwards, it always rests against the cushion.

Another comfort to invalids travelling, is an India rubber bag for hot water with a flannel case. Indeed it is well to have two of these if the invalid be very delicate. If any sudden chill is felt, or if any pain in the chest or elsewhere should come on, relief is often obtained by the application of a hot-water bottle which takes the place of a poultice. The invalid's friend can easily get these bottles filled with hot water by giving a small gratuity to the guard of the train, and asking him to fill them when stopping at a station. Stoppages occur on the French lines at least every two hours, and the water retains its heat quite long enough to make it useful between the stoppages. Another thing which is a great comfort is an eider-down coverlet, which should be both long and broad. It is useful, not only during travelling by land or by sea, but during a stay at the health resorts. One would imagine that an eider-down quilt would be bulky and inconvenient to travel with, but this is not the case. In most "hold-alls" there is a large pocket, and the eider-down quilt can be readily rolled up and put into this pocket. When the straps are once around it, it can, from its softness, be easily pressed into a small bulk.

Two other things that the invalid should not be without are a small etna, with can or kettle, to boil water, and a small package of tea, also beef-tea in a portable form, with a small box of biscuits. Even when such things are to be had at a hotel, the prices put upon them are sometimes so exorbitant that the invalid would hardly care to order them, however much he might desire them.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY DURING THE WEEK ENDING DECEMBER 13, 1884.

Craig, T. C., Passed Assistant Surgeon. Detached from Alliance and placed on waiting orders. Dec. 6, 1884.

Curtis, L. W., Assistant Surgeon. To the Naval Hospital, Chelsea. Dec. 9, 1884.

Gaines, J. H., Passed Assistant Surgeon. Present duty continued.

Green, E. H., Passed Assistant Surgeon. Special duty at Museum of Hygiene, Washington. Dec. 11, 1884.

Murray, J. M., Passed Assistant Surgeon. Detached from Naval Hospital, Chelsea, to the Flagship Hartford. Dec. 9, 1884.

Wolverton, T., Surgeon. To the Shenandoah. Dec. 6, 1884.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM DECEMBER 6, 1884, TO DECEMBER 12, 1884.

Hammond, John F., Colonel and Surgeon, retired from active service, by operation of law, on Dec. 7, 1884, under provision of Act of Congress approved June 30, 1882. (S. O. 287, A. G. O., Dec. 8, 1884.)

Irwin, B. J. D., Major and Surgeon, granted one month's leave of absence. (S. O. 112, Dept. Arizona, Nov. 28, 1884.)

McKee, J. C., Major and Surgeon. Leave of absence still further extended one month. (S. O. 288, A. G. O., December 9, 1884.)

O'Reilly, Robt. M., Captain and Assistant Surgeon, assigned to duty as attending Surgeon, Washington City, D. C., to date from October 20, 1884. (S. O. 284, A. G. O., December 4, 1884.)

Porter, Joseph Y., Captain and Assistant Surgeon, sick leave of absence extended four months on surgeon's certificate of disability. (S. O. 286, A. G. O., Dec. 6, 1884.)

Kane, John J., Captain and Assistant Surgeon, from Dept. East to Willets Point, New York. (S. O. 286, A. G. O., December 6, 1884.)

Banister, J. M., Captain and Assistant Surgeon. (Ft. Adams, R. I.) Granted one month's leave of absence on surgeon's certificate of disability. (S. O. 251, Dept. East, December 9, 1884.)

Barrows, C. C., First Lieutenant and Assistant Surgeon, in addition to other duties, to take charge of Medical Division Office, Dept. Arizona, during absence of Surgeon B. J. D. Irwin. (S. O. 112, Dept. Arizona, Nov. 28, 1884.)

Gray, Chas. C., Major (retired.) Died at Geneva, N. Y., Nov. 22, 1884, instead of Nov. 26, as heretofore announced. (Circular Orders A. G. O. December 8, 1884.)

THE

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REPORT OF LIBRARIAN.

ANNUAL REPORT OF THE LIBRARIAN OF THE AMERICAN MEDICAL ASSOCIATION AT THE ANNUAL MEETING IN WASHINGTON, MAY, 1884.

[By. C. H. A. Kleinschmidt, M. D., Washington, D. C.]

CATALOGUE OF ADDITIONS BY DONATIONS, EXCHANGES AND SUBSCRIPTION TO THE LIBRARY OF THE AMERICAN MEDICAL ASSOCIATION, FROM MAY 1, 1883, TO MAY 1, 1884.

Aitken (Wm.)—Handbook of Therapeutics. New York, 1882.

Allen (Nathan.)—The Laws of Human Increase. Studies of the Laws of Life The Prevention of Insanity. Claims of the Sick Poor. Influence of Medical Men.

Anderson (M. F.) The Phosphates in Nutrition.

Army Engineer Department (United States).—The Fortifications of To-day. Washington, 1883. Donor, Engineer Bureau.

Army Medical Department (United States.)—Medical and Surgical History of the War of the Rebellion, Part III, vol. II, Surgical History, 4to. 986 pp. Illustrated.

Index Catalogue of the Library of the Surgeon-General's Office.—Authors and Subjects. Vol. IV. Donor, Surgeon-General's Office.

Ashby (T. A.)—A Contribution to the Study of Neglected Lacerations of the Cervix Uteri and Perinæum. Donor, Author.

Atlee (J. L.)—A Case of Strangulated Hernia. Donor, Author.

Atlee (L. W.)—A Case of Congenital Cyst of the Back of the Head. Donor, Author.

Atlee (W. F.)—The History of a Case of Abdominal Cystic Tumor. A Case of Ovariotomy. A Case of Fungosities of the Bladder.

Baldwin (W. O.)—Tribute to the late James Marion Sims, M.D., LLD.

Beilstein (F.)—Lessons in Quantitative Chemical Analysis. Translated by C. O. Curtman. 1883.

Belfield (W. T.)—On the Relations of Micro-Organisms to Disease. Reprint. Donor, Author.

Billings (J. S.)—Medical Biography. Reprint. Donor, Author.

Biography. (Ashford F. A.)—Memoir of. Donor, Washington Obstetrical and Gynæcological Society.

Biography. (Hakes, H.)—By G. B. Kulp. Donor, Author.

Boedecker (C. F. W.) Iodoform in Dental Surgery. Reprint. Donor, Author.

Borck (E.)—Diagnosis of Ovarian Tumors. Lectures. Donor, Author.

Brownson (W. G.)—The Country Doctor. Reprint. Donor, Author.

Bruen.—(E. T.) Pocket Book of Physical Diagnosis.

Burnett (C. H. and O. C. A.)—Clinical History of a Case of Recurrent Dropsy of the Left Middle Ear. Reprint. Donor, Author.

Busey (S. C.)—Influence of Constant Use of High-heeled French Shoes upon the Female Form, etc. Reprint. Washington Malaria and the Catching of Cold. Reprint. Craniotomy upon the Living Fœtus is not Justifiable. First Annual Address of the President delivered before the Washington Obstetrical and Gynæcological Society. Reprint. Donor, Author.

COLLEGES.

Annual Announcements, Circulars, Addresses, Theses, etc.

CANADA.

Montreal.—McGill University. Annual Announcement, 1883-84.

GERMANY.

Kiel.—Universität. Chronik der Universität Kiel. V. 1882; Amtliches Verzeichniss der Personals und der Studirenden der Universität Kiel, 1882, II., III.; Verzeichniss der Vorlesungen au der Universität Kiel. 1882, II. 1883, I. Inaugural Dissertations. Exchanges.

Blass (F.)—Einiges aus der Geschichte der Astronomie im Alterthum. Rede, 1883.

Blass (F.)—De Gemino et Posidonio. Dissertatio, 1883.

Caplick (L.)—Ueber Diabetes Mellitus. 1882.

Dinkelacker (E.)—Ueber Acutes Oeden. 1882.

Ducker (W.)—Beiträge zur Lehre vom Precarium. 1882.

Glaweck (L.)—Ueber die Ausscheidung und Vertheilung des Eisens im Thierischen Organismus nach Einspritzung von Eisensalzen. 1883.

Hildemann (A.)—Beitrag zur Casuistik der angeborenen Hemmungsbildungen der Extremitäten. 1882.

Hindrichsen (C.)—Accommodationskrampf bei Myopie. 1882.

Hoeck (F.)—Beiträge zur Morphologie, Gruppirung und Geographischen Verbreitung der Valerianaceen. 1882.

Fürgens (K.)—Zur Pathogenese und Casuistik der Gelenkneurosen. 1882.

Kindt (A.)—Beitrag zur Histogenese primares Leber Carcinome. 1882.

Matzdorrf (C.)—Ueber die Färbung von Idotea tricuspidata, Desm. 1882.

Pape (C.)—Ueber Silicium Propylverbindungen. 1882.

Paulsen (E.)—Experimentelle Untersuchungen über die Strömung der Luft in der Nasenhöhle. 1882.

Pfeiffer (W.)—Ueber interstitielle Pneumonie. 1882.

Schroeder (C.)—Zur Statistik der Croupösen Pneumonie. 1882.

Schütze (H.)—Beitrag zur Statistik der Myopie und der Netzhautpunction. 1882.

Volbehr (O.)—Beitrag zur Kenntniss der Diphtheritis und Tracheotomy. 1882.

Würzburg.—Universität. Festschrift zur dritten Säcularfeier der Alma Julia Maximiliana. Gewidmet von der Medicinischen Facultät. Vol. I., II. Leipzig, 1882. Donor, Medical Faculty, Univ. Würzburg.

NOVA SCOTIA.

Halifax Medical College. Annual Announcement for 1883-84.

UNITED STATES.

California—San Francisco. Cooper Medical College. Annual Announcement, 1883, 1884. Addresses delivered on the Occasion of the Dedication of Cooper Medical Building. L. C. Lane and E. R. Taylor.

District of Columbia—Georgetown University, Medical Department. Annual Announcement, 1883-84. National Medical College. Annual Announcement, 1883-84. Washington Training School for Nurses. Act of Incorporation, By-Laws, etc., 1883. Annual Announcement, 1883-84.

Illinois—College of Physicians and Surgeons of Chicago. Second Annual Announcement, 1883-84.

Kentucky—University of Louisville, Medical Department. Announcement, 1883-84.

Maryland—Johns Hopkins University. Circulars. Vol. II, 23 (Supplement to) 24, 25. Vol. III, 27, 28, 29, 30. Studies from The Biological Laboratory. Vol. II, 4.; Vol. III, 1.

Maryland University Medical Department. Annual Circular 1883-84. Baltimore Polyclinic and Post-Graduate Medical School. Announcement, 1884.

Massachusetts—College of Physicians and Surgeons, Boston. Annual Announcement, 1883-84.

Michigan—College of Dental Surgery. Announcement, 1883-84.

New York—Bellevue Hospital Medical College. Announcement, 1883-84. College of Physicians and Surgeons. Catalogue and Announcement, 1883. University of the City of New York. Announcement and Catalogue, 1883-84. American Veterinary College, New York. Announcement, 1883-84.

Ohio—Medical College of Ohio. Announcement, 1883-84. Toledo Medical College. Announcement, 1883-84.

Pennsylvania—Woman's (The) Medical College. Announcement, 1883-84. Commercial Relations of the United States, 1880-81. Washington, 1883; pp. 1175. Commerce of the World and the Share of the United States therein. 1883. Pp. 373. Reports from the Consuls of the United States on Commerce, etc., of their Consular Districts, Nos. 32, 36, 37, 38, 39. Donor. State Department.

Congressional Record. Vol. XI, 1-9, 11-14. Index, 1-14, 15-25. Index, 26, 28, 29, 31-35, 84, 85, 92. Donor, D. Wm. Lee.

Cornwell (H. G.)—Consultation Chart of the Eye Symptoms and Eye Complications in General Diseases.

Da Costa (Alvarenga)—Théories de l'action Thérapeutique du Tartre Stibié dans la Pneumonie. Lisbonne, 1881. Des médications Hypothermique et Hyperthermique. Lisbonne, 1881. Donor, Author.

Davis (N. S.)—Observations on the Efficient Causes of Serous Diarrhœa and Cholera Morbus in Infancy and Early Childhood, and the best means for lessening the mortality from those affections. Donor, Author.

Drysdale (T. M.)—The Ovarian Cell.

Dubosie (de Pau)—Des Effets Comparés de divers traitements de la Fiévre Typhoide et de ceux produits en particulier par L'Ergot de Seigle de bonne qualité. Paris, 1883. Donor, Author.

Dulles (C. W.)—What to do first in Accidents and Emergencies. Philadelphia, 1883. Donor, Author.

Dunglison (R. J.)—The Practitioner's Ready Reference Book. Philadelphia, 1883. Donor, Author.

Eastman (J.)—Anatomy, Surgery and Hygiene of the Rectum. Donor, Author.

EDUCATION.

Circulars of Information of the U. S. Bureau of Education. 1883. No. I, Legal Provisions Respecting the Examination and Licensing of Teachers. No. II, Co-education of the Sexes in the Public Schools of the United States. Report of the Commissioner of Education for 1881. Answers to Inquiries About the United States Bureau of Education. C. Warren, M.D., 1883. Donor, Bureau of Education. Medical Education and the Regulation of the Practice of Medicine in the United States. Prepared by the Illinois State Board of Health. Chicago, 1884.

Ellis (J.)—Deterioration of the Puritan Stock. 1884.

Elsberg (L.)—Introductory Address before the Medical Class of Dartmouth College. 1883.

Elwell (J. J.)—Guiteau; a Case of Alleged Moral Insanity.

Farr (U. H.)—The Active Management of Abortion.

Foreign Relations of the United States, papers relating to the. 1882. Washington, 1883, pp. 557. Donor, Department of State.

Formad (H. F.)—The Bacillus Tuberculosis; Is Consumption Contagious? Reprint. Pp. 36. Donor, Author.

Galippe, (V.)—Rapport sur le Fonctionnement d'une des Annexes du Service Medical de l'école Monge. Paris, 1883. Rapport sur l'enseignement de l'Odontologie en Angleterre. Paris, 1882. Donor, Author.

Geological and Natural History Survey of Canada. A. R. C. Selwyn, Director. Report of Progress for 1880–82 Maps to accompany Report. Montreal, 1883,

Gilliam (D. T.)—The Essentials of Pathology. Philadelphia, 1883.

Gordon (S. C.)—Results of Treatment of Injuries Occurring at Parturition.

Gradle (H.)—Bacteria and the Germ Theory of Disease. Chicago, 1883. Donor, Author.

Gray (H.)—Anatomy, Descriptive and Surgical. Pp. 1023. Philadelphia, 1883.

Greene (J. S.)—Neurasthenia.

Griswold (R. M.)—What is an Inebriate? and why is he one?

Hamilton (J. B.)—Epidemic Diseases, Control of. Reprint. Donor, Author.

Hartigan (J. F.)—Trismus Nascentium. Reprint. Donor, Author.

Hawes (J.)—Charlatanism in Colorado. Reprint. Donor, Author.

Hendrix (H. F.)—A Tracheotomy Tube for Gradual Withdrawal. Reprint, Donor, Author.

Hill (Berkeley.)—The Essentials of Bandaging. New York, 1883.

Holmes (T.)—A System of Surgery. 3 vols. New York. Donor, Wm. Wood & Co.

HOSPITALS, ASYLUMS, DISPENSARIES.

Reports, Etc.

GERMANY.

Berlin.—Charité Annalen. Herausgegeben von der Direction des Königl. Charité Krankenhauses in Berlin. Editor, Dr. Mehlhausen. VIII. Jahrgang, 1883. Pp. 700. Exchange.

GREAT BRITAIN.

London.—St. Bartholomew's Hospital Reports. Vol. XIX, pp. 427. Exchange.

UNITED STATES.

Connecticut.—Connecticut Hospital for the Insane. Eighteenth Report, 1884.

District of Columbia.—Children's Hospital, Thirteenth Annual Report, 1883. Columbia Hospital for Women and Lying-in Asylum; Report for 1883. Charter and By-laws, 1884. Donor, P. J. Murphy, M.D.

Illinois.—Central Free Dispensary of West Chicago. Sixteenth and Seventeenth Annual Reports. Southern Hospital for the Insane at Anna. Report for 1882. Asylum for Feeble-Minded Children. A special Report made by the Trustees to the Governor of Illinois, 1883.

Massachusetts.—St. John's Hospital, Report of Medical Staff, 1882. State Lunatic Asylum at Northampton, Report for 1883.

Michigan.—Eye and Ear Department of St. Mary's Hospital, Detroit, Report for 1883.

New York.—New York Hospital and Bloomingdale Asylum, Report for 1883, pp. 54. Manhattan Eye and Ear Hospital, Fourteenth Annual Report. Ophthalmic and Aural Institute, Annual Reports for 1880, 1881, and 1882.

Pennsylvania.—Pennsylvania Hospital, Report of the Board of Managers, 1883. Pennsylvania Hospital for the Insane, Report for 1882. Friends' Asylum for the Insane, Report for 1883.

Rhode Island.—Butler Hospital for the Insane, Reports of the Trustees and Superintendent, 1884.

Hughes (C. H.)—The Opium Psycho-Neurosis. A Psychical Analysis of a Legally Sane Character. The Therapeutic Value of Cephalic and Spinal Electrization. The Simulation of Insanity by the Insane. Borderland Psychiatric Records. Reprints. Donor, Author.

Hutchins (A.)—The Reciprocal Attitude of the Medical Profession and the Community. Donor, Author.

Hyde (J. N.)—Study of a Case of Multiple Sarcomata of the Skin. Donor, Author.

Hygiene, Public—District of Columbia. Report of Health Officer for 1882. Monthly Bulletin, April, May, June, September, October, 1883. Donor, Health Officer.

Illinois.—State Board of Health Proceedings, 1883.

Maryland.—State Board of Health, Fifth Biennial Report, 1884.

Minnesota.—State Board of Health, Biennial Report, 1881 and 1882. Tract No. 3, 1881, Typhoid Fever. Tract No. 1, 1883, Small-Pox.

Tennessee.—State Board of Health Proceedings, 1884.

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Jones (Joseph.)—Contagious and Infectious Diseases.

Jones (Talbot).—Some Recent Progress in Diseases of the Nervous System.

Judson (A. B.)—The History of Three Cases of Hip Disease in the Third Stage.
Lane (L. C.)—Ligations for the Cure of Aneurism.
Lewis (D.)—The Development of Cancer from Non-Malignant Diseases.
McGowan (Jennie)—Relations and Duties of the General Profession Toward Insanity.
MacKenzie (J. N.)—Tubercular Tumors of the Windpipe. On Nasal Cough. Reprints.
Marcy (H. O.)—Annual Address delivered before the American Academy of Medicine at New York, 1883.
Marine Hospital Service (United States).—Preliminary Report of the Yellow Fever Epidemic of 1882 in the State of Texas. Donor, Supervising Surgeon-General.
Marshall (J. S.)—Report of the Section on Dental and Oral Surgery, American Medical Association. Reprint.
Martin (T. H.)—Massage, its Application; and a New Operating Table. Reprint.
Mason (L. D.)—Alcoholic Insanity. Reprint.
Medical Ethics.—Catalogue of Members of the Medical Profession in the State of New York, showing their Vote on the Codes of Ethics. New York, 1884.
Meyers (W. H.)—On Shock. Reprint.
Miller (J. P.)—The Hydatidiform Mole. Reprint.
Mills (T. W.)—An Examination of Some Controverted Points of the Physiology of the Voice, Especially the Register of the Singing Voice and the Falsetto.
Morgan (James E.)—A Defense of Medicine and of the Medical Profession. Annual Address to the Medical Society, District of Columbia. Donor, Author.
Morris (J.)—Hydrops Chorii. Reprint.
Mulheron (J. J.)—Collective Investigation of Diphtheria.
Navy, United States—Bureau of Medicine and Surgery. Report of the Surgeon-General for 1881. Donor, Bureau of Medicine and Surgery.
Nunn (R. J.)—Report on Diseases of Women from the First Congressional District, Georgia. Use of Peroxide of Hydrogen in Diphtheria.
O'Daniel (W.)—Malarial Poisoning the Cause of Hæmaturia.
Park (Roswell)—The Electric Light in Surgical Diagnosis.
Parke, Davis & Co.—Working Bulletins, vol. I, 1883. Descriptive Circulars on New Drugs.

PERIODICALS.

BELGIUM.

Archives Médicales Belges. Organe du Corps Sanitaire de l'Armeé, Bruxelles. Third series. Vol. XXIII, 4, 5, 6; XXIV; XV, 1, 2. Exchange.

BRITISH AMERICA.

Canada (The) Lancet. Monthly. Toronto. Vol. XVI, 1–3, 5–7. Exchange.
Canada Medical and Surgical Journal. Monthly. Montreal. Vol. XI, 10–12; Vol. XII, 1–9. Exchange.
Canada (The) Medical Record. Monthly. Montreal. Vol. XI, 7–8, 10–12; vol. XII, 1–6. Exchange.
Canadian (The) Journal of Medical Science, Toronto. Now the Canadian Practitioner. Monthly. Vol VIII, 6–12; IX, 1–4. Exchange.
Dominion (The) Sanitary Journal, Ottawa. Vol. VI, 4. Exchange.
L'Union Médicale du Canada. Revue Mensuelle de Médicine et de Chirurgie. Vol. XII, 6–12; vol. XIII, 1–4. Exchange.

FRANCE.

Algeria.—Gazette Médicale de l'Algérie; 28me Année, 8, 9, 11, 12, 14, 15, 19–24; 2me Année, 4. Exchange.
Paris.—Archives de Médicine et de Pharmacie Militaires. Publiées par Ordre du Ministre de la Guerre. Paraissant deux fois par mois. Tome II, 14, 18, 19, 23; tome III, 4. Exchange.
Archives de Médicine Navale. Tome XXXVIII, 5, 6; XL, 1, 2, 9–12; XLI, 1–4. Exchange.
Bulletin de L'Intendanee Annuaire des Corps du Controle de l'Administration du Corps de l'Intendance, etc. 1883. Pp. 310. Juin, 1883. Pp. 196. Exchange.
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Bulletin du Service de Santé Militaire. 1883. No. 306–320. Exchange.
Journal de Médecine et de Chirurgie pratiques. Vol. LIV, 5–11. LV, 1–3. Exchange.
La France Medicale. Vol. II, 22.
La Lumiére Electrique. Journal Universel d'Electricité, 5me Anneé, Tomes VIII, IX, X. 6me Année, Tome XI, 4–10.
Lançette (La) Française. Exchange.
Gazette des Hôpitaux, 56me Année, 1–119. Exchange.
Révue Scientifique et Administrative des Médécins des Armées. Vol. X, 203–205. Exchange.

GERMANY.

Leipzig.—Aerztliches Vereinsblatt für Deutschland. Vol. XII, 132–136, 138–140. Exchange.
Leipzig.—Deutsches Archiv für Geschichte der Medicin und Medicinischen Geographie. H. Rohlfs, Editor. Vol. VI, 3, 4; VII, 1. Exchange.

GREAT BRITAIN.

Customs Gazette. Special Catalogue of the Chinese Collection of Exhibits for the International Fisheries Exhibition. London, 1883. Published by order of the Inspector-General of Customs. Miscellaneous Series, No. 11, 1883.
Medical Reports. Special Series, No. 2, 1883. No. 2, 1883, 24th Issue. 1883, 25th Issue. Exchange.
British Medical Journal. Being the Journal of the British Medical Association. Weekly. No. 1188, 1190–1193, 1195–1209. Exchange.
Glasgow, The, Medical Journal. Vol. XIX, 5, 6; XX, XXI, 1–4. Exchange.
Liverpool, The, Medical Journal, No. 6.
Practitioner, The, a Journal of Therapeuties and Public Health. T. Lauder Brinton, Editor. Vol. 31, I.

RUSSIA.

St. Petersburger Medicinische Wochenschrift. Vol. VIII, 16–46, 49, 50, 52. Exchange.

SWEDEN.

Nordisk Medicinsk Arkiv. Axel Key, Editor. Vol. XV. Exchange.

SWITZERLAND.

Bern.—Illustrirte Monatsschrift der Ärztlichen Polytechnik. Vol. V; Vol. VI, 1–4. Exchange.

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Æsculapian, The. A Monthly Journal of Medicine and Surgery. E. J. Bermingham, Editor. Monthly. N. Y. Vol. I, No. 1.
Alienist, The, and Neurologist. A Quarterly Journal of Scientific, Clinical and Forensic Psychiatry and Neurology. C. H. Hughes, Editor, St. Louis. Vol. IV, 3, 4; V, 1.
American Druggist (New Remedies). An Illustrated Monthly Journal of Pharmacy, Chemistry, and Materia Medica. New York. Vol. XIII, 1–3.
American, The, Journal of Insanity. Utica, N. Y. XXXIX, 4; XL, 1, 3. Exchange.
American, The, Journal of Obstetrics and Diseases of Women and Children. Vol. XVI, 11, 12; XVII, 1–3. Exchange.
American Journal of Pharmacy. Monthly. J. M. Maisch, Editor. Vol. LV, 8–12; LVI, 1–3. Exchange.
American, The, Journal of the Medical Sciences. Quarterly. J. Minis Hays, Editor. N. S. Vol. LXXXVI, Nos. CLXXI, CLXXII; Vol. LXXXVII, Nos. CLXXIII, CLXXIV. Exchange.
American, The, Medical Journal. Monthly. G. C. Pitzer, Editor. XI, 8, 9, 11, 12. XII, 1–3. Exchange.
American, The, Monthly Microscopical Journal. Romga Hitchcock, Editor. Vol. V, 1–3.
American Observer. Medical Monthly. E. A. Lodge, Editor. Vol. XX, 7.
American, The, Practitioner. Monthly. D. W. Yandell, J. A. Octerlony, Editors. Vol. XXVIII, 165.
American, The, Psychological Journal. Quarterly. Jos. Parrish, Editor. 1, 2, 3.
American, The, Veterinary Review. A. Liantard, Editor. Vol. VII, 3–9, 11, 12. VIII, 1. Exchange.
Analectic, The. A monthly periscopic summary of the Progress of Medical Science. W. S. Wells, Editor. Vol. I, 1.

Annals of Anatomy and Surgery. Vol. VII, 6.
Archives, The, of Dentistry. (Successor to the Missouri Dental Journal.) Vol. I, 1–3. Exchange.
Atlanta, The, Medical and Surgical Journal. W. T. Westmoreland, Editor. N. S., Vol. I, 12.
Atlanta Medical Register. N. S., Vol. II, 1–8, 11, 12. Vol. III, 2. Exchange.
Bistoury, The. Thad. S. Updegraff, Editor, Elmira, N. Y. Vol. XX, 2–4. XXI, 1. Exchange.
Boston, The, Journal of Chemistry. Now under the title "The Popular Science News and Boston Journal of Chemistry. Vol. XVII, 6–12. XVIII, 1–5. Exchange.
Boston, The, Medical and Surgical Journal. Vol. CVIII, 19–26. CIX, CX, 1, 2, 4–14, 17. Exchange.
Braithwaite's Retrospect of Practical Medicine and Surgery. Part LXXXVIII.
Buffalo, The, Medical and Surgical Journal. T. Lothrop and others, Editors. XXII, 10–12. XXIII, 1–9. Exchange.
Chicago, The, Medical Journal and Examiner. J. N. Hyde, Editor. Vol. XLVI, 6. XLVII, XLVIII, 1–2. XLIX, 3, 4. Exchange.
Chicago Medical Times. Monthly. W. H. Davis, Editor. Vol. XV, 5, 6, 9–12.
Cincinnati, The, Lancet and Clinic. Weekly. Vol. X, 20–26. XI, 1–4, 10, 11. XII, 2, 3, 5–11. Exchange.
Cincinnati, The, Medical News. Monthly. J. A. Thacker, Editor. Vol. XII, 5–12. XIII, 1–4. Exchange.
College, The, and Clinical Record. Monthly. R. J. Dunglison, Editor. Vol. III, 6–12. IV, V, 1–4. Exchange.
Columbus, The, Medical Journal. Monthly. J. T. Baldwin, Editor. Vol. I, 11, 12. II, 1–10. Exchange.
Dental, The, Cosmos. Monthly. J. W. White, Editor. Vol. XXV, 7–12. XXVI, 1, 2, 3. Exchange.
Dental, The, Jairus. Monthly. W. O. Thrailhill, Editor. Vol. V, 1.
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Independent, The, Medical Investigator. S. S. Boots, Editor. Vol. II, 3–6.
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Medical, The, World. Monthly. C. F. Taylor, Editor. Vol. I, 1, 3, 11. Vol. II, 1–4.
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New England, The, Medical Monthly. W. C. Wile, Editor. Vols. I, II, III, 1-5. Exchange.
New, The, Medical Era and Sanitarian. Monthly. Kansas City. A. L. Chipman, Editor. Vol. I, 8, 9, 10, 12.
New Orleans, The, Medical and Surgical Journal. R. Matus and others, Editors. Vol. X, 11, 12; XI, 1–6, 8–10. Exchange.
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New York, The, Medical Abstract. Vol. III, 5.
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Prince, A. E.—Report on Ophthalmology and Otology. Observations on the use of Bromide of Ethyl, etc.
Quimby, J. N.—Pathological Action of Alcoholic Stimulants on Health and in Disease. Donor, author.
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Wyman, W.—Quarantine. Donor, author.

DOMESTIC CORRESPONDENCE.

OVARIOTOMY.

Dec. 1, 1884.

TO THE EDITOR OF THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

I have been much interested in the article entitled, "Unilocular Ovarian Cyst Weighing 95 pounds Successfully Removed, by Geo. E. Ranney, M.D., of Lansing, Mich."

I was not alone interested in the history of the case, from the great size of the tumor, but more especially from the fact that about one month ago the same case was reported, in the *Medical Age*, of Detroit, as being "the largest ovarian tumor ever removed in the State of Michigan," and that Dr. Edward W. Jenks, of Detroit, was the remover thereof, and that Dr. Ranney "assisted." As Dr. Ranney did not furnish this information to the *Age*, I am much interested in the *how* and the *whatfor* of this dual report? Did this patient really have two 95-pound tumors? so that Dr. Jenks could cut away one, and Dr. Ranney the other(?) Yet, Dr. Ranney says it was an "unilocular" cyst, in his title, that *he* cut away. Evidently, from the facts before the profession now, some one needs to read, and draw a lesson, from Luke xiv, 7–12. H.

List of Permanent Members

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Abbott, E. J., St. Paul, Minn. 1882
Abbott, L. J., Fremont, Neb. 1882
Abbott, E. W., Minneapolis, Minn. 1882
Acker, Geo. N., Washington, D. C. 1881
Adair, Jas. B., Cedar Creek, Texas. 1879
Adair, L. J., Anamosa, Ia. 1883
Adams, Anna S., Peoria, Ill. 1884
Adams, R. D., Skiddy, Ks. 1883
Adams, B. F. D., Colorado Spr., Col. 1876
Adams, C. Powell, Hastings, Minn. 1877
Adams, Jno. G. New York, N. Y. 1880
Adams, J. F. A., Pittsfield, Mass. 1881
Adams, J. R., Petersburg, Ind. 1879
Adams, S. S., Washington, D. C. 1881
Adams, Z. B., Framingham, Mass. 1880
Adolphus, P., Chicago, Ill. 1884
Ader, Henry, Somerset, Ind. 1875
Adrian, James A., Logansport, Ind. 1871
Agard, Aurelius H., Oakland, Cal. 1863
Agnew, Cornelius R., New York, N.Y. 1860
Agnew, D. Hayes, Philadelphia, Pa. 1872
Aiken, E. W., Winnsboro, S. C. 1879
Aikman, R., Ft. Scott, Ks. 1884
Ainey, David C., New Milford, Pa. 1884
Ainsworth, H. R., Addison, N. Y. 1879
Alcorn, A. W., Ravenna, Ohio. 1884
Albright, F. G., Lancaster, Pa. 1876
Alden, C. H., U. S. Army, Ft. Yates, Dakota Ter. 1880
Alexander, A. J., Bloomington, Ill. 1882
Alexander, H. W., Joliet, Ill. 1882
Alexander, C., Eau Claire, Wis. 1877
Alexander, J. A., Broadway, Va. 1881
Alleman, Horace, Hanover, Pa. 1884
Alleman, Levi J., Boone, Ia. 1882
Allen, C. C., Chilicothe, Ill. 1882
Allen, Charles L., Rutland, Vt. 1853
Allen, Ezra P., Athens, Pa. 1860
Allen, Harrison, Philadelphia, Pa. 1880
Allen, H. B., Baldwinsville, N. Y. 1880
Allen, J. Adams, Chicago, Ill. 1877
Allen, John W., Shreveport, La. 1881
Allen, Joshua G., Philadelphia, Pa. 1872
Allen, Nathan, Lowell, Mass. 1849
Allen, Chas. S., New York, N. Y. 1883
Allen, H. C., New Staitville, Ohio. 1883
Alley, E. H., Toledo, Ohio. 1876
Alley, W. B., Nunda, N. Y. 1878
Allport, W. W., Chicago, Ill. 1881
Alter, M. H., Rittaning, Pa. 1882
Alvord, A. W., Battle Creek, Michigan. 1882
Ames, Azel, Jr., Boston, Mass. 1879
Ames, Edward, Sherman, N. Y. 1880
Amory, Robert, Brookline, Mass. 1870
Anawalt, J. W., Greensburg, Pa. 1872
Anders, James M., Philadelphia, Pa. 1884
Anderson, Jas. H., New York, N. Y. 1884
Anderson, Wm., Indiana, Pa. 1868
Anderson, Wm. H., Mobile, Ala. 1880
Anderton, W. B., New York, N. Y. 1883
Andrews, C. H., Metuchen, N. J. 1882
Andrews, Judson B., Buffalo, N. Y. 1884
Andrew, Geo. L., La Porte, Ind. 1877
Andrews, Edm., Chicago, Ill. 1851
Andrews, John S., Brooklyn, N. Y. 1878
Andrews, Josiah, Pawpaw, Mich. 1874
Andrews, R. F., Gardner, Mass. 1878
Angear, J. J. M., Chicago, Ill. 1873
Anthony, W. E., Providence, R. I. 1876
Antisell, Thos., Washington, D. C. 1884
Archibald, O. W., Glenwood, Iowa. 1878
Armor, S. G., Brooklyn, N. Y. 1880
Armitage, D. R., Muncie, Ind. 1881
Armstrong, L. G., Boscobel, Wis. 1876
Armstrong, W. S., Atlanta, Ga. 1879
Arnold, E. S. F., Port Chester, N.Y. 1863
Arnold, W. W., Rushville, Ind. 1883
Arnold, John, Rushville, Ind. 1875
Appley, W. W., Cochecton, N.Y. 1884
Arthur, C. S., Portland, Ind. 1883
Asdale, Wm. James, Pittsburg, Pa. 1869
Ash, Henry St. Clair, Philadelphia, Pa. 1884
Ashby, T. A., Baltimore, Md. 1884
Ashmead, William, Philadelphia, Pa. 1847
Ashton, Lawrence, Falmouth, Va. 1881
Atkinson, I. E., Baltimore, Md. 1876
Atkinson, Wm B., Philadelphia, Pa. 1859
Atlee, Walter F., Philadelphia, Pa 1883
Atlee, J. L., Athens, Tenn. 1879
Atlee, John L., Lancaster Pa. 1876
Atwood, LeGrand, St. Louis, Mo. 1884
Auld, Jas. H., Dallas, Iowa 1884
Austin, Silas A., Rockford, Ill. 1884
Austin, Herman W., Cincinnati, O. 1881
Avery, G. W., Hartford, Conn. 1878
Ayer, Otis, Le Sueur, Minn. 1882
Ayres, Samuel, Pittsburgh, Pa. 1884
Ayres, J. H., Urbana, Ohio 1880

Babcock, A. G. Galva, Ill. 1882
Babcock, A., New Hope, Ia. 1884
Bache, J. H., Detroit, Mich. 1883
Bachman, N. E., Stanton, Mich. 1883
Backus, Charles W., Three Rivers, Mich. 1872
Bacon, C. P., Evansville, Ind. 1874
Bacon, Charles Giles, Fulton, N. Y. 1855
Baguley, H. B., Wheeling, W. V. 1883
Bailey, Jonathan R., Ferguson, Ky. 1858
Bailey, J. W., Gainesville, Ga. 1878
Bailhache, P. H., Washington, D.C. 1876
Bain, F. D., Kenton, O. 1884
Baker, Edw., Indianola, Ia. 1884
Baker, Henry B., Lansing, Mich. 1874
Baker, Jerman, Shelbyville, Ky. 1875
Baker, John W. H., Davenport, Iowa 1860
Baker, L. H., Payson, Ill. 1873
Baker, N. D., Berkeley, W. Va. 1881
Baker, E. L., Indianola, Iowa, 1882
Baker, J. F., Hudson, Wis. 1882
Baker, E. O., Menomonie, Wis. 1882
Baker, Moses, Stockwell, Ind. 1884
Baker, N. H. Thomas, W. Va. 1884
Baker, Bascom Thomas, W. Va. 1884
Baker, Moses, Stockwell, Ind. 1882
Baldwin, A. E. Chicago, Ill. 1882
Baldwin, L. K., Philadelphia, Pa. 1884
Baldwin, H. R., New Brunswick, N.J. 1880
Baldwin, Wm. Owen, Montgomery, Ala. 1868
Ball, Alfred, Zanesville, Ohio 1881
Ball, D. R., Nelson, Neb. 1884
Ballou, Ariel, Woonsocket, R. I. 1880
Balmer, A. F., Brookville, Pa. 1883
Bancroft, Fred. J., Denver, Col. 1878
Bangs, L. B., New York, N. Y. 1880
Banks, Gertrude L., Detroit, Mich. 1880
Barber, W. L., Waterbury, Ct. 1884
Barber, Isaac H., Brooklyn, N. Y. 1880
Barber, A. E., Bethel, Ct. 1883
Barber, R. D., Worthington, Minn. 1882
Barger, R. N., Hopedale, Ill. 1884
Barker H. H., Washington, D. C. 1872
Barker, Fordyce, New York, N. Y. 1880
Barley, Thos. F., Georgetown, S. C. 1884
Barnes, A. T., Bloomington, Ill. 1882
Barnes, T. H. Waukon, Ia. 1882
Barnes, E. R., Buffalo, N. Y. 1877
Barnes, H. B., Ionia, Mich. 1851
Barnes, Lewis, Oxford, Ct. 1883
Barnes, W. F., Fredericksburg, Ohio. 1883
Barr, Geo. W., Titusville, Pa. 1868
Barret, J. E., Wooster, Ohio. 1883
Barrett, Wm. M., Boston, Mass. 1880
Barrows, A. W., Hartford, Conn. 1876
Bartleson, S. P., Clifton Heights, Pa. 1883
Bartlett, C. H., Olean, N. Y. 1878
Bartlett, C. K., St. Peter's, Minn. 1877
Bartlett, H. S., Flatbush, N. Y. 1880
Bartlett, John Knowlton, Milwaukee, W. 1854
Barton, James M., Philadelphia, Pa. 1878
Barton, P. H., Danville, Ill. 1883
Barton, T. L., Zanesville, Ohio. 1883
Barton, T. J., Cleveland, O. 1884
Bass, Wm., Lowell, Mass. 1878
Basset, Moses F., Quincy, Ill. 1864
Bates, C. M., San Francisco, Cal. 1871
Bates, J. M., Wauseon, Ohio. 1880
Bates, Newton L., Washington, D. C. 1884
Bates, H. O., Millersburg, Ia. 1884
Batcheller, D. H., Providence, R. I. 1883
Batten, J. M., Pittsburg, Pa. 1876
Battey, Robert, Rome, Ga. 1875
Battles, W. S., Shreve, Ohio. 1872
Bauduy, J. K., St. Louis, Mo. 1880
Baxter, Henry F., Philadelphia, Pa. 1880
Baxter, J. H., Washington, D. C. 1878
Baxter, W. H., Wilton, Iowa. 1870
Bayles, Geo., Orange, N. J. 1884
Beach, Wm. Morrow, London, Ohio, 1880
Beach, A. P., Seville, Ohio. 1883
Beach, J. N., West Jefferson, Ohio. 1883
Beall, Elias J., Fort Worth, Tex. 1884
Bean, J. V., Howard, Kan. 1877
Beard, F. W., Vincennes, Ind. 1883
Beardsley, C. E., Ottawa, Ohio. 1874
Beasley, Geo. F., La Fayette, Ind. 1878
Beaver, C. F., Baltimore, Md. 1884
Becknell, Irvin J., Milford, Ind. 1884
Bedient, J., Kasson, Minn. 1877
Beeche, C. V., Manistee, Mich. 1883

Beerman, P., Sidney, Ohio. 1883
Beggs, G. W., Sioux City, Ia. 1882
Bell, J., Olathe, Kan. 1882
Bell, A. Nelson, Brooklyn, N. Y. 1860
Bell, John, Benton Harbor, Mich. 1874
Bell, Samuel, Beloit, Wis. 1880
Bell, Wm. H., Logansport, Ind. 1874
Belden, A. C., Akron, Ohio. 1883
Belfield, W. T., Chicago, Ill. 1883
Bell, Wm H., Logansport, Ind. 1883
Benham, J. C., Hudson, N. Y. 1884
Benjamin, Dowling, Camden, N. J., 1884
Bennett, Alice, Norristown, Pa. 1884
Bennet, E. O., Wayne, Mich. 1884
Bennett, George H., Lima, N. Y. 1874
Bennett, H. F., Canandaigua, N. Y. 1878
Bennett, J. H., Wauseon, Ohio. 1886
Bennett, J. H., Coldwater, Mich. 1882
Bennett, I. E., Plano, Ill. 1883
Benninghoff, G. E., Kendall Creek, Pa. 1883
Bennitt, John, Cleveland, Ohio. 1874
Berkebile, J. K., Millstadt, Ill. 1879
Berlin, J. O., Chapman Quarry, Pa. 1881
Berntheizel, G. W., Lancaster, Pa. 1880
Berry, Chas., New Ulm, Minn. 1882
Besharran, John H., Milwaukee, Wis. 1884
Beshoar, Michael, Trinidad, Col. 1874
Best, David, Meadville, Pa. 1874
Betton, G. W., Tallahassee, Fla. 1876
Bickford, H. H., St. Louis, Mo. 1882
Bigelow, Jas. K., Indianapolis, Ind. 1881
Bigelow, Horatio R., Washington, D.C. 1884
Biggs, H. M., New York, N. Y. 1884
Bill, C. H., Bridgeport, Conn. 1883
Billings, Frank, Chicago, Ill. 1884
Billings, John Shaw, U. S. A., Washington, D. C. 1868
Bingham, LeRoy M., Burlington, Vt. 1880
Birch, Thos. J., Port Carbon, Pa. 1883
Birdsall, Gilbert, N. Brookfield, N. Y. 1880
Birney, Clavius C., Nora, Iowa. 1882
Bishop, Timothy H., New Haven, Conn. 1847
Bishop, W. T., Harrisburg, Pa. 1884
Bishop, Henry M., Sharon, Pa. 1882
Bissell, F. E., Litchfield, Minn. 1882
Bittinger, J. H., Hanover, Pa. 1881
Bitz, L. B., Blairsville, Ind. 1878
Bixby, Geo. Holmes, Boston, Mass. 1875
Bixley, S. N., Strawberry Pt., Ia. 1884
Blachly, O. L., Sparta, Pa. 1880
Blachly, S. L , Sparta, Pa. 1874
Black, G. V., Jacksonville, Ill. 1884
Blackburn, J. F , Ozark, Ark. 1883
Blackford, B , Lynchburg, Va. 1881
Blackmer, F. A., Albert Lea, Minn. 1884
Blair, W. M., Darlington, Wis. 1884
Blair, A. R., York, Pa. 1880
Blair, James F., Marshall, O. 1884
Blaisdell, I. C., Wilmore, Pa. 1883
Blakeman, Wm.N., New York, N.Y. 1847
Blakeslee, Edwin, Anamosa, Iowa. 1873
Blanchard, L., Edgewood, Iowa. 1883
Blanchard, J. A., Des Moines, Iowa. 1882
Bland, D. W., Pottsville, Pa. 1876
Blane, John, Perryville, N. J. 1855
Bliss, J. C., Mantonville, Minn. 1882
Bliss, Lyman W., Saginaw, Mich. 1874
Blitz, A., Minneapolis, Minn. 1875
Bloomfield, E. M., Peru, Ind. 1883
Bloomer, F. H., Pleasant View, Indiana. 1882
Blount, R. F., Wabash, Ind. 1882
Blount, C. N., Hagerstown, Ind. 1884
Blum, Richard, Helvetia, W. Va. 1877
Blumberg, A., Pittsburg, Pa. 1884
Blumenthal, Mark, New York, N. Y. 1880
Boal, R., Peoria, Ill. 1882
Boardman, Chas. H., St. Paul, Minn. 1882
Boarman, C. V., Washington, D. C. 1884
Bodine, J M., Louisville, Ky. 1867
Bodkin, D. G., Brooklyn, N. Y. 1876
Bogie, M. A., Kansas City, Mo. 1882
Boise, Eugene, Grand Rapids, Mich. 1880
Boker, Charles S. Philadelphia, Pa. 1864
Boles, R. S., Richland, O. 1883
Bombaugh, C. C., Baltimore, Md. 1884
Bondurant, A. A., Charleston, Mo. 1883
Bonebreak, D. W., Martinsburg, Pa. 1 80
Bonsteel, A. S., Corry, Pa. 1878
Bontecou, Reed B., Troy, N. Y. 1853
Book, J. B., Detroit, Mich. 1870
Boone, Alonzo, Dayton, O. 1880
Boor, W. F., Newcastle, Ind. 1884
Booth, David S., Sparta, Ill. 1876
Boothby, E. L., Hammond, Wis. 1883
Borck, Edw., St. Louis, Mo. 1881
Bossert, Jacob, Washingtonville, O. 1884
Boswell, A. J., Andrews, Ind. 1884
Bosworth, F. H., New York, N. Y. 1884
Bowditch, Henry I., Boston, Mass. 1848
Bowditch, V. Y., Boston, Mass. 1882
Bowman, C,, New Albany, Ind. 1882
Bowman, Jeremiah, Flora, Ill. 1881
Bowen, Asa B., Maquoketa, Iowa. 1876
Bower, A. J., Moore's Hill, Ind. 1884
Boyd, S. S., Dublin, Ind. 1877
Boyd, Jas. P., Albany, N. Y. 1880
Boyd, John, M., Knoxville, Tenn. 1857
Boyden, W. J., Muncie, Ind. 1883
Boyland, G. Halsted, Baltimore, Md. 1884
Boys, W., Waverly, Iowa. 1882
Bozeman, Nathan, New York, N.Y. 1884
Bozeman, Eli K., Americus, Ga. 1883
Brackett, A. B., Goldfield, Iowa. 1882
Bradford, E. H., Boston, Mass. 1884
Bradford, W. A., Butler, Ky. 1881
Bradley, C. C., Manchester, Iowa. 1877
Bradley, T. W., Cardville, Pa. 1876
Brady, John, Grand Rapids, Mich. 1874
Brainard, D. S., Stacyville, Iowa, 1882
Braman, F. N., New London, Ct. 1884
Bramble, D. D., Cincinnati, Ohio. 1880
Bramblitt, W. H., Wytheville, Va. 1881
Brandon, J. F., Anderson, Ind. 1882
Brant, A. C., Canton, Ohio. 1882
Brallier, E., Chambersburg, Pa. 1876
Brayton, F. D., Carey, O. 1883
Bready, John E., Dubuque, Iowa, 1884
Breakey, W. F., Ann Arbor, Mich. 1877
Breck, Wm. G., Springfield, Mass. 1878
Breinig, P. B., Bethlehem, Pa. 1865
Brendle, Geo. F., Mahoney City, Pa. 1884
Brenneman, Jos. T., Audubon, Iowa. 1882
Brewster, A. D., Pittsburg, Pa. 1882
Brewster, J. B., Plymouth, Mass. 1880
Breysacher, A. L., Little Rock, Ark. 1873
Brice, R. S., Keola, Iowa. 1884
Bricker, W. R., Shelby, Ohio. 1883
Bridenstirne, S J., Madison, Neb. 1883
Briggs, E. C., Boston, Mass. 1883
Briggs, John R., Gainesville, Texas. 1884
Briggs, Wm. Thompson, Nashville, Tenn. 1869
Briggs, A. H., Buffalo, N. Y. 1884
Brigham, O. S., Toledo, O. 1883
Brinton, John H., Philadelphia, Pennsylvania. 1880
Briscoe, W. C., Washington, District of Columbia. 1884
Britton, J. B., Mapleton, Kan. 1884
Brobst, J. C., Libiz, Pa. 1884
Brock, C. W. P., Richmond, Va. 1881
Brockett, A. J , Cleveland, Ohio. 1876
Brodie, Wm., Detroit, Mich. 1854
Brooks, D. F., Minneiska, Minn. 1876
Brooke, G. W., Ellsworth, Ohio. 1883
Brookhauser, B. E., Lansing, Iowa. 1882
Brooks, J. G., Paducah, Ky. 1882
Brophy, T. W., Chicago, Ill. 1881
Brother, Ferd., Bunker Hill, Ill. 1876
Brown, C. W., Elmira, N. Y. 1876
Brown, Geo. W., Port Carbon, Pa. 1884
Brown, Isaac E., Detroit, Mich. 1876
Brown, R. B., Summerville, Pa. 1880
Brown, G. C., Macon City, Mo. 1882
Brown, John W., Mountville, N. Y. 1884
Brown, F. B., Baltimore, Md. 1884
Brown, Bedford, Alexandria, Va. 1884
Brown, H. M., Milwaukee, Wis. 1883
Brown, Jas. M., McVeytown, Pa. 1883
Brown, Hawkins, Hustonville, Ky. 1884
Brown, U. Higgins, Syracuse, N. Y. 1880
Brown, W. Owen, Providence, R. I. 1855
Brown, J. W., Mottville, N. Y. 1880
Brower, D. R., Chicago, Ill. 1877
Browne, James, Portland, Oregon. 1884
Browne, John Mills, U. S. Navy. 1881
Browne, B. B., Baltimore, Md. 1884
Brownell, Wm., Utica, Mich. 1874
Brownell, J. R., Washington, D. C. 1884
Brownfield, Jas. H., Fairmont, W. Va. 1884
Brownson, W. G., New Canaan, Conn. 1880
Brubaker, A. S., Akron, Pa. 1883
Bruebach, G. T., Ft. Wayne, Ind. 1875
Bruehl, Gustavus, Cincinnati, Ohio. 1871
Bruen, E. T., Philadelphia, Pa 1880
Brumbaugh, A. B., Huntingdon, Pa. 1884
Brumme, Carl, Detroit, Mich. 1874
Brundage, A. T., Factoryville, Pa. 1880
Brundage, A. H., Xenia, Ohio. 1883
Bruner, Daniel J , Columbia, Pa. 1871
Brush, E. N., Buffalo, N. Y. 1884
Brush, E. F., Mt. Vernon, N. Y. 1884
Bryant, J. D., New York, N. Y. 1880
Buck, H. B., Springfield, Ill. 1876
Buckham, T. R., Flint, Mich. 1874
Buchanan, J. G., Allegheny, Pa. 1882
Bucher, I. R., Lebanon, Pa. 1884
Bucchner, W. L., Youngstown, Ohio. 1882
Buckby, Wilson, Philadelphia, Pa. 1884
Buckham, J. N., Flint, Mich. 1883
Buckingham, John M., Springfield, O. 1884
Buckingham, Henry G., Clayton, N. J. 1884
Buckley, J. J., Delhi, N. Y. 1880
Bucklin, Daniel D., Lansingburg, N. Y. 1870
Buckner, James H., Cincinnati, Ohio. 1864
Bucknum, A. M., Denver, Col. 1877
Buffett, L., Cleveland, Ohio. 1883
Buist, J. Somers, Charleston, S. C. 1884
Bulkeley, J. E., Wilksbarre, Pa. 1872
Bulkley, J. W., Washington, D. C. 1878
Bulkley, L. Duncan, New York, N. Y. 1874
Bull, Charles S., New York, N. Y. 1873
Bullard, W. N., Boston, Mass. 1883
Bunce, Wm. H., Oberlin, Ohio. 1878
Bunker, E. S., Brooklyn, N. Y. 1880
Bunn, James W., W. Union, Ohio. 1884
Bunting, Ross R., Roxboro, Pa. 1883
Burbank, O., Waverly, Iowa 1882
Burchard, T. H., New York, N. Y. 1880
Burge, J. H. Hobart, Brooklyn, N. Y. 1857
Burge, W. J., Pawtucket, R. I. 1880
Burke, W. C., Jr., S. Norwalk, Conn. 1880
Burke, G. W., Newcastle, Ind. 1882
Burkei, Geo. W , Tyrone, Pa. 1884
Burnett, Swan M., Washington, D.C. 1880
Burr, Chas., Carbondale, Pa. 1876
Burr, Chauncey S., Mitchell, D. T. 1883
Burr, A. H., Chicago, Ill. 1884

Burrall, Fred. A., New York, N. Y. 1872
Burrell, D. R., Canandaigua, N. Y. 1878
Burroughs, R. Bruce, Jacksonville, Fla. 1880
Burroughs, J. L., Sugar Grove, Pa. 1883
Burrows, E., Chicago, Ill. 1884
Burtless, W. E., Midland City, Mich. 1884
Burton, H. R., Lewes, Del. 1884
Burton, E. D., Collamer, Ohio. 1883
Burton, G. W., Mitchell, Ind. 1874
Burton, Mathew Henry, Troy, N. Y. 1869
Burwell, G. N., Buffalo, N. Y. 1883
Busey, Samuel C., Washington, D. C. 1870
Bush, Lewis P., Wilmington, Del. 1847
Bush, J. Foster, Boston, Mass. 1884
Butt, Richard L., Midway, Ala. 1879
Buttermore, Smith, Connellsville, Pa. 1874
Buzzard, John, Bangor, Pa. 1881
Byrd, W. A., Quincy, Ill. 1873
Byford, Henry T., Chicago, Ill. 1874
Byford, William H., Chicago, Ill. 1854
Byrne, John, Brooklyn, N. Y. 1864

Cabell, J. Grattan, Richmond, Va. 1881
Cabell, J. L., University of Virginia. 1855
Caldwell, T. J., Adel, Iowa, 1882
Caldwell, W., Fremont, Ohio. 1883
Caldwell, J. J., Baltimore, Md. 1884
Calhoun, A. W., Atlanta, Ga. 1879
Calkins, Marshall, Springfield, Mass. 1866
Campbell, E. R., Bellows Fall, Vt. 1880
Campbell, Henry F., Augusta, Ga. 1879
Campbell, A. X., Jamesport, Mo. 1882
Campbell, J. Y., Paxton, Ill. 1882
Campbell, R. A., Lewistown, Pa. 1883
Campbell, D. St. C., Wilson, N. Y. 1883
Cannon, J. W., Jackson, Mo. 1877
Canfield, Herman, Bristol, R. I. 1884
Cantwell, J. Y., Mansfield, Ohio. 1882
Care, H. W., Martinsville, Ind. 1883
Carhart, John W., Lampassus, Texas 1884
Carlin, J., Ottumwa, Iowa. 1882
Carolin, Wm. T , Lowell, Mass. 1884
Carpenter, Geo. P., Cedar Rapids, Iowa 1882
Carpenter, Wesley M., New York 1882
Carpenter, A E., Boonton, N. J. 1876
Carpenter, Henry, Lancaster, Pa. 1880
Carpenter, Horace, Salem, Oregon. 1860
Carpenter, J. M., New Lancaster, Kan. 1878
Carpenter, John T., Pottsville Pa. 1878
Carpenter, Julia W., Cincinnati, O. 1880
Carr, L. C., Cincinnati, O. 1882
Carr, G. W., Providence, R. I. 1880
Carradine, J. S., New York, N. Y. 1880
Carrier, A. E., Detroit, Mich. 1883
Carrington, C., Farmington, Conn. 1872
Carroll, Alfred Ludlow, New Brighton, N. Y. 1880
Carroll, R. J., Red Hook, N. Y. 1876
Carson, M. R., Canandaigua, N. Y. 1881
Carson, Jas., Mt. Vernon, Iowa. 1884
Carson, Lewis. O., Traders' Point, Ind. 1884
Carstens, J. Henry, Detroit, Mich. 1876
Carter, J. M. G., Waukegan, Ill. 1884
Carter, M. B., Richmond, Va. 1881
Carter, J. O., Lincoln, Neb. 1884
Carter, Geo. W., Marshalltown, Iowa 1882
Caruthers, Horace, Tarrytown, N. Y. 1880
Casal, F. M., Pittsfield, Ill. 1880
Case, E. P., Waterville, Minn. 1881
Case, H. R., Grand Blanc, Mich. 1884
Case, P. F., Richland Centre, Wis. 1883
Case, A. G., Allegheny, Pa. 1883
Casebeer, J. M. La Grange, Ind. 1883
Casebeer, J. B., Auburn, Ind. 1877
Casper, F., Niles, Ohio. 1884
Cass, John, Hamilton, O. 1883
Castle, F. E., Waterbury, Conn. 1880
Caswell, E. T., Providence, R. I. 1877
Cathell, D. W., Baltimore, Md. 1884
Catlett, Geo. C., St. Joseph, Mo. 1882
Catlin, G. E., Lake Geneva, Wis. 1880
Catlin, E. P., Rockford, Ill. 1884
Chace, D. W., Delphos, Kan. 1882
Chaillé, S. E., New Orleans, La. 1879
Chamberlain, C. N., Lawrence, Mass. 1876
Chamberlain, G. M., Chicago, Ill. 1877
Chamberlain, M. L., Boston, Mass. 1880
Chamberlaine, J. E. M., Easton, Md. 1880
Chamberlayne, J. K., Utica, N. Y. 1880
Chambers, John W., Baltimore, Md. 1884
Chambers, Wm. Mortimer, Charlestown, Ill. 1879
Chambers, John, Indianapolis, Ind. 1881
Chancellor, J. Edgar, University of Va. 1875
Chandler, C. M., Montpelier, Vt. 1880
Channing, Walter, Brookline, Mass. 1880
Chapin, A. B., Detroit, Mich. 1883
Chapman, E. N., Brooklyn, N. Y. 1880
Chapman, G. H., Grand Crossing, Ill. 1877
Chapman, J. F., Katonah, N. Y. 1880
Charlton, Samuel H., Seymour, Ind. 1875
Charter, L. R., West Union, W. Va. 1881
Chase, S. B., Osage, Ia. 1882
Chase, H. H., Linden, Mich. 1875
Cheeseman, T. M., New York, N. Y. 1872
Cheever, David W., Boston, Mass. 1884
Chenoweth, W. J., Decatur, Ill. 1872
Chessrown, A. V., Pittsburg, Pa. 1878
Chew, John H., Chicago, Ill. 1877
Chew, S. C., Baltimore, Md. 1880
Chipman, M. M., San Francisco, Cal. 1876
Chisolm, J. J., Baltimore, Md. 1880
Chittock, Gordon, Jackson, Mich. 1873
Chittendon, Geo. F., Anderson, Ind. 1882
Chittendon, E. W., Anderson, Ind. 1882
Chitwood, J., Connersville, Pa. 1884
Choate, J. J., Oak Grove, Mo. 1882
Christian, E. P., Wyandotte, Mich. 1876
Christian, G. W., Weimar, Texas. 1880
Christian, R. B., Little Rock, Ark. 1879
Christiansen, E., Grand Island, Neb. 1884
Christie, W. L., Creston, Ia, 1883
Chritzman, H. G., Welsh Run, Pa. 1884
Church, Rita B., Williamsport, Pa. 1884
Cisneros, Juan, New York, N. Y. 1880
Clagett, Luther S., Blairsville, Pa. 1881
Claiborne, J. H., Petersburg, Va. 1881
Clapp, Elmer F., Iowa City, Ia. 1884
Clark, Alonzo, New York, N. Y. 1847
Clark, A. T., Greenville, Pa. 1877
Clark, E. W., Grinnell, Ia. 1877
Clark, L. S., Philadelphia, Pa. 1880
Clark, S. S., Belvidere, N. J. 1880
Clark, D. S., Rockford, Ill. 1882
Clark, T. C., Stillwater, Minn. 1882
Clark, J. E., Detroit, Mich. 1883
Clark, M. S., Youngstown, Ohio. 1883
Clark, P. H., Ashland, Ohio. 1883
Clark, H. H., Danville, Ill, 1883
Clark, L. A., Rockford, Ill. 1884
Clark, David S., Derry, N. H. 1884
Clarke, L. R., West Union, W. Va. 1881
Clarke, W. E., Chicago, Ill. 1882
Clarke, Almon, Sheboygan, Wis. 1882
Clarke, Rowan, Tyrone, Pa. 1880
Clarke, A. P., Cambridgeport, Mass. 1880
Clarkson, Henry M., Haymarket, Va. 1884
Cleaver, J. H., Council Bluffs, Iowa. 1884
Cleeman, R. A., Philadelphia, Pa. 1879
Clements, E. B., Macon, Mo. 1883
Clendenin, Wm., Cincinnati, O. 1883
Cleveland, John L., Cincinnati, O. 1884
Cleveland, E. F., Dundee, Ill. 1880
Cline, S. E., Bloomington, Ill. 1883
Cluness, Wm. Robert, Sacramento, Cal. 1871
Coakley, J. B., Buffalo, N. Y. 1883
Cobb, W. F., Mona, Iowa 1882
Cobb, C. H., Boston, Mass. 1884
Coblentz, Joseph, Baltimore, Md. 1872
Cochran, J. Henry, The Plains, Va. 1884
Cochran, Jerome, Mobile, Ala. 1884
Cock, Thos. F., New York, N. Y. 1848
Codman, B. S., Boston, Mass. 1882
Coffee, J. Turner, Steelville, Mo. 1878
Coffey, Henry T., Peoria, Ill. 1876
Coffman, V. H., Omaha, Neb. 1882
Cogswell, G. B., North Easton, Mass. 1881
Coggeshall, W. H., Richmond, Va. 1883
Cohen, J. Solis, Philadelphia, Pa. 1876
Colburn, J. R., Little Rock, Ark. 1882
Cole, N. B., Bloomington, Ill. 1884
Cole, Fred., El Paso, Ill. 1876
Cole, R. Beverly, San Francisco, Cal. 1871
Cole, Samuel, Denver, Col. 1878
Cole, W. C., Attica, Ind. 1880
Cole, W. W., Allegheny, Pa. 1884
Coleman, B. L , Lexington, Ky. 1879
Coleman, J. S., Augusta, Ga. 1880
Coleman, A., Logansport, Ind. 1876
Coles, Abraham, Newark, N. J. 1880
Coles, J. A., Newark, N. J. 1876
Collamore, G. A., Toledo, O. 1883
Collier, J. M., Troy, Ala. 1879
Collins, James, Philadelphia, Pa. 1868
Collins, S. B., New York. 1883
Coltman, R., Jenkinton, Pa. 1884
Colvin, Darwin, Clyde, N. Y. 1878
Comegys, Cornelius G., Cincinnati, O. 1884
Comings, B. M., New Britain, Conn. 1883
Compton, Wm., Lancaster, Pa. 1884
Conklin, S. A., Canton, O. 1873
Conklin, W. J., Dayton, O. 1878
Conley, A. T., Cannon Falls, Minn. 1883
Conn, G. P., Concord, N. H. 1880
Connally, E. L., Atlanta; Ga. 1879
Connell, J. G., Pittsburg, Pa. 1882
Connor, Leartus, Detroit, Mich. 1874
Conner, P. S., Cincinnati, Ohio, 1867
Cook, A. J., Cleveland, Ohio. 1881
Cook, E. P., Mendota, Ill. 1876
Cook, W. J., Freeport, Pa. 1882
Cook, S. D , Sigourney, Iowa. 1882
Cooke, A. H., Chicago, Ill 1884
Cooke, Henry G., Holmdell, N. J. 1884
Cooke, Theodore, Baltimore, Md. 1880
Coombs, John W., Peotone, Ill. 1884
Coons, I. A., Spring Hill, Kan. 1882
Coop, W. A. H., Friendship, Tenn. 1882
Coope, A. F., Oil City, Pa. 1874
Cooper, Chas. N., Batavia, Ill. 1880
Cooper, John M., Wellsburg, W. Va. 1870
Cooper, Wm. S., Troy, N. Y. 1880
Cooper, W. D., Minersville, Va. 1884
Coover, E. H., Harrisburg, Pa. 1877
Coram, John J., Zanesfield, O. 1884
Corcoran, G. L., Brimfield, Ill. 1873
Cordell, Eugene F., Baltimore, Md. 1881
Corey, Lavanner, Van Buren, Ind. 1881
Cornell, H. G., Columbus, Ohio. 1883
Corr, Lucinda H., Carlinsville, Ill. 1884
Correll, John W., Baltimore, Md. 1878
Corson, Ellwood M., Norristown, Pa. 1884
Corson, Hiram, Plymouth Meeting, Pa. 1847
Corson, Wm., Norristown, Pa. 1876
Corson, Jno., Middletown, Ohio. 1883
Corson, O. M., Trenton, Ohio. 1883
Cory, E. C., Turner's Falls, Mass. 1881
Cosgrove, Thos., Sylvania, O. 1883
Cotes, John R., Batavia, N. Y. 1878
Cottrell, Jos. F., Columbia, Pa. 1881
Courtney, J. T., Whitewater, Ind. 1883

Cowan, J. E., Galesburg, Ill. 1882
Cowan, J. M., Hennepin, Ill. 1882
Cowan, George, Danville, Ky. 1867
Cowden, J. W., Rock Island, Ill. 1870
Cowles, Edw., Somerville, Mass. 1878
Cox, G. W., Clayton, Ill. 1883
Cox, Timothy B., Frankfort, Ind. 1884
Cox, Wm. M., Mt. Sterling, Ill. 1883
Coyne, S. J., Stevens Pt., Wis. 1882
Coyle, J. M., Nashville, Tenn. 1883
Cozad, Jas., Reynolds, Ill. 1876
Craft, J., Worthington, Minn. 1878
Crafts, John M., Cuyahoga Falls, O. 1883
Craig, Alexander, Columbia, Pa. 1870
Craig, J. W., Mansfield, Ohio. 1878
Craig, G. G., Rock Island, Ill. 1878
Craig, T. E., Manchester, Ind. 1883
Crain, M. F., Angola, Ind. 1877
Crampton, O. L., Mobile, Ala. 1872
Crang, Frederick, Watsonville, Cal. 1884
Crapo, G. W., Terre Haute, Ind. 1878
Crawford, J. B., Wilkesbarre, Pa. 1872
Crawford, J. K., Cooperstown, Pa. 1876
Crawford, Robt., Cooperstown, Pa. 1878
Crawford, J. L., Greensburg, Pa. 1883
Crawford, A., Bardstown, Ky. 1883
Crawford, S. K., Monmouth, Ill. 1883
Crego, F. S., Buffalo, N. Y. 1883
Cremin, M. A., New Haven, Conn. 1884
Cretcher, W. H., Bellefontaine, Ohio. 1883
Criley, B. H., Dallas Centre, Iowa. 1878
Croft, T. G., Aiken, S. C. 1870
Cronyn, John, Buffalo, N. Y. 1878
Cross, E. W., Rochester, Minn. 1877
Cross, W. C., Cherokee, Ala. 1875
Crossley, W. A., Troy, Ala. 1879
Crouse, D. W., Waterloo, Iowa 1874
Crouse, J. H., Dayton, Ind. 1882
Cruice, Wm. R., Philadelphia, Pa. 1882
Cruice, Robt. B., Philadelphia, Pa. 1884
Crummer, B. F., Warren, Ill. 1882
Cuddy, J. W. C., Baltimore, Md. 1884
Culbertson, Howard, Zanesville, Ohio 1872
Culbertson, R. H., Brazil, Ind. 1881
Cullen, J. S. D., Richmond, Va. 1876
Cullimore, T. M., Jacksonville, Ill. 1883
Cunkle, L. J., Madison, Kan. 1883
Cunningham, F. D., Richmond, Va. 1873
Cunningham, J. G., Kittaning, Pa. 1883
Cupples, Geo., San Antonio, Tex. 1884
Currie, D. A, Englewood, N. J. 1876
Curtis, W. K., Wellsburg, W. Va. 1882
Curtin, R. G., Philadelphia, Pa. 1880
Curtman, Chas. O., St. Louis, Mo. 1873
Curwen, John, Warren, Pa. 1870
Cushing, H. K., Cleveland, Ohio 1878
Cushman, H., Brighton, Iowa 1884
Cutter, Ephraim, New York, N. Y. 1871
Cutter, C. K., Charleston, Mass. 1884

Dagenais, A., Buffalo, N. Y. 1884
Dabney, W. C., Charlottesville, Va. 1875
Dale, John R., Arkadelphia, Ark. 1884
Dalton, J. C., New York, N. Y. 1884
Daly, Wm. H., Pittsburg, Pa. 1876
Daniel, F. E., Ft. Worth, Tex. 1884
Daniels, Clayton M., Buffalo, N. Y. 1884
Dandridge, N. P, Cincinnati, Ohio 1883
Darnall, G. D., West Union, Iowa. 1882
Darr, H. H., Caldwell, Tex. 1883
Darrah, A. T., Bloomington, Ill. 1877
Davenport, F. H., Boston, Mass. 1881
Davenport, Geo., E. Randolph, Vt. 1880
Davenport, Jas., St. Paul, Minn. 1882
Davidson, A. R., Buffalo, N. Y. 1880
Davison, Calvin K., Stanhope, N. J. 1881
Davis, G. P., Hartford, Conn. 1880
Davis, John Staige, University of Va. 1881
Davis, Moses M., Baraboo, Wis. 1877
Davis, J. D. S., Birmingham, Ala. 1884
Davis, F. F., S. Oil City, Pa. 1883
Davis, L. N., Farmland, Ind. 1883
Davis, R. C., Seneca, S. C. 1884
Davis, R. T., Fall River, Mass. 1884
Davis, W. A., Camden, N. J. 1884
Davis, S. W., Plymouth, N. H. 1883
Davis, W. C., Indianola, Iowa. 1883
Davis, Nathan Smith, Chicago, Ill. 1847
Davis, S. T., Lancaster, Pa. 1881
Davis, J. D. S., Birmingham, Ala. 1884
Davidson, Henry C., Hartford, Ind. 1884
Davison, John B., Moline, Ill. 1873
Davisson, J. H., Warsaw, Ind. 1877
Davisson, H. C., Hartford City, Ind. 1883
Dawson, J. O., Westerville, Ohio. 1883
Dawson, W. W., Cincinnati, Ohio. 1875
Day, R. H., Baton Rouge, La. 1884
Dayton, G. H., Lima, Ind. 1880
Dayton, W. L., Lincoln, Neb. 1883
Dean, D. V., St. Louis, Mo. 1873
Dean, H. M., Muscatine, Iowa. 1876
Dearborn, S. G., Nashua, N. H. 1875
Deaver, J. M., Buck, Pa. 1884
De Camp, Wm. H., Grand Rapids, Mich. 1867
Deering, A. A., Boone, Iowa. 1878
De Hart, J. N., Madison, N. J. 1878
Delaney, J. O. F., St. Louis, Mo. 1880
Dellenbaugh, C. C., Portland, Mich. 1877
DeLong, W. H., Emporium, Pa. 1884
DeLamater, S. T., Bridgeport, Conn. 1884
DeMotte, C. W., Shelby, Iowa. 1883
Deming, H. H., Pana, Ill. 1882
Dennis, F. S., New York, N. Y. 1883
Denison, Chas., Denver, Col. 1875
Dent, W. Marmaduke, Newburg, W. Va. 1870
De Szigethy, C. A. H., Los Angeles, Cal. 1877
Deuell, E. V., Saratoga Springs, N. Y. 1876
Deveney, S. C., Chicago, Ill. 1884
DeWitt, B., Oswego, N. Y. 1876
Dibble, F. L., New Haven, Conn. 1884
Dibrell, J. A., Sr., Van Buren, Ark. 1884
Dibrell, J. A., Jr., Little Rock, Ark. 1875
Dick, F. N., North Platte, Neb. 1884
Dickinson, G. K., Jersey City, N. J. 1880
Dickinson, W. L. East Saginaw, Mich. 1880
Dickman, F. F., Ft. Scott, Kan. 1884
Dice, R. B., Charlottesville, Va. 1884
Didama, Henry D., Syracuse, N. Y. 1864
Dieffenbacher, P. L., Havana, Ill. 1881
Dille, G. W., Cooperstown, Pa. 1883
Dimond, Theo., Auburn, N. Y. 1880
Dodds, F. S., Arna, Ill. 1882
Dodge, H. O., Boulder, Col. 1877
Dodge, L. P., Farmington, Minn. 1882
Dodson, N. M., Berlin, Wis. 1872
Dodson, B. F., Berlin, Wis. 1884
Donaldson, E. F., Wabash, Ind. 1884
Donaldson, Frank, Baltimore, Md. 1884
Donaldson, John B., Canonsburg, Pa. 1884
Donally, J. C., Palatka, Fla. 1884
Donahoe, Henry James, Sandusky, O. 1856
Donges, John W., Camden, N. J. 1884
Donelan, J. A., Glenwood, Iowa 1882
Donnelly, M., New York, N. Y. 1882
Dorn, S. B., Bradford, Pa. 1878
Dorland, W. L., Chicago, Ill. 1883
Dorland, Jas., Milwaukee, Wis. 1877
Dora, J. W., Mattoon, Ill. 1873
Dosh, Jacob R., Stuart, Iowa. 1884
Doston, B. R., Blakely, Ga. 1884
Dougall, W., Joliet, Ill. 1877
Doughty, W. E., Hartsville, Pa. 1884
Dougherty, J. E., Greentown, O. 1883
Douglas, George, Oxford, N. Y. 1869
Douglas, W. H., Columbia, Mo. 1882
Dow, Jas. A., Cambridge, Mass. 1884
Doyle, Gregory, Syracuse, N. Y. 1880
Doyle, Thos. H., St. Joseph, Mo. 1878
Drake, H. H., Norristown, Pa. 1881
Drake, Isaac L., Lebanon, O. 1883
Drake, E. G, Antrim, Pa. 1876
Drayer, P., Hartford City, Ind. 1882
Drewry, E. A., Drewrysville, Va. 1881
Drysdale, Thomas M., Philadelphia, Pa. 1873
Dudley, E. H., Shell Rock, Ark. 1882
Dudley, E. C, Chicago, Ill. 1883
Dudley, A. P., Portland, Me. 1884
Duffield, S. P., Dearborn, Mich. 1883
Duffy, Jr., Chas., Newbern, N. C. 1878
Duhring, L. A., Philadelphia, Pa. 1884
Du Hadway, C., Jerseyville, Ill. 1882
Dulles, C. W., Philadelphia, Pa. 1884
Dumm, S. C., Constantia, Ohio 1880
Duncan, B. A., West Point, Miss. 1884
Duncan, J. A., Toledo, O. 1883
Duncan, J. K. L., De Witt, Neb. 1884
Duncan, John H., Kansas City, Mo. 1884
Duncan, Wm. S., Brownsville, Pa. 1870
Dundor, A. B., Reading, Pa. 1873
Dunglison, Richard J., Philadelphia, Pa. 1874
Dunlap, Alex., Springfield, O. 1873
Dunlap, A. S., Dayton, O. 1875
Dunsmore, Geo., St. Albans, Vt. 1882
Dunlap, J. Francis, Manheim, Pa. 1884
Dunmire, Geo. B., Philadelphia, Pa. 1884
Dunn, J. C., Pittsburg, Pa. 1884
Dunn, W. A., Boston, Mass. 1884
Dunn, L. D., Moline, Ill. 1883
Dunn, J. H., Shakopee, Minn. 1882
Dunn, O. B., Ironton, O. 1883
Dunning, L. H., South Bend, Ind. 1876
Dunster, Edw. S., Ann Arbor, Mich. 1877
Dunsmore, F. A., Minneapolis, Minn. 1882
Dupree, Jas. W., Baton Rouge, La. 1882
Durant, G., New York, N. Y. 1876
Du Val, E. R., Ft. Smith, Ark. 1880
Dutton, C. F., Cleveland, O. 1882
Dwelly, Jerome, Fall River, Mass. 1884
Dysart, B. G., Paris, Mo. 1877
Dyer, Ezra, Newport, R. I. 1882

Eagan, W. C., Atlantic, Iowa. 1882
Eagles, C. W., Old Sparta, N. C. 1881
Earle, R. W., Columbus, Wis. 1884
Earle, Chas. W., Chicago, Ill. 1882
Earle, G. W., Tully, N. Y. 1878
Eastman, Joseph, Indianapolis, Ind. 1873
Eastman, L. M., Baltimore, Md. 1877
Eastman, R. W., Owego, N. Y. 1880
Eastman, Wm., Mineral Pt., Iowa. 1882
Edmiston, Aaron W., Clinton, Ill. 1882
Edwards, R. A., Walton, Ky. 1850
Edwards, Amos S., Syracuse, N. Y. 1878
Edwards, Landon B., Richmond, Va. 1879
Edwards, Geo. A., Syracuse, N. Y. 1884
Egan, J. C., Shreveport, La. 1877
Egbert, T. W., Oil City, Pa. 1877
Ehler, J. Augustus, Lancaster, Pa. 1878
Eichberg, Jos., Cincinnati, Ohio. 1883
Elder, E. S., Indianapolis, Ind. 1881
Eldridge, Jas. H., E. Greenwich, R. I. 1882
Eliot, Gustavus, New Haven, Conn. 1884
Eliot, Johnson, Washington, D. C. 1858
Eliot, Ellsworth, New York, N. Y. 1880
Ellenberger, J. W., Harrodsburg, Pa. 1884
Ellegood, Robt. G., Concord, Del. 1880
Elliott, J. M., Hickory Corners, Mich. 1881
Elliott, J. C.. Bradford, Pa. 1884

Ellinwood, A. G., Attica, N. Y. 1880
Ellis, L. S., Manistee, Mich. 1882
Ellsberry, W. W., Georgetown, Ohio. 1884
Ellzey, M. G., Washington, D. C. 1884
Elmer, Wm., Bridgeton, N. J. 1876
Elrod, E. B., Flora, Ill. 1878
Elsberg, Louis, New York, N. Y. 1864
Elsner, H. L., Syracuse, N. Y. 1883
Elsner, John, Denver, Col. 1871
Emack, F. D., Phœnixville, Pa. 1880
Emery, G. W., Minneapolis, Minn. 1882
Emmert, Jos. M., Atlantic, Iowa. 1882
Emmerling, Chas., Pittsburg, Pa. 1881
Enfield, Americus, Bedford, Pa. 1884
Engelman, Jos. P., Cherryville, Pa. 1883
Engelmann, Geo. J., St. Louis, Mo. 1876
English, D. C., New Brunswick, N. J. 1870
Ensign, H. D., Boone, Iowa. 1878
Ensign, W. O., Rutland, Ill. 1877
Eply, F. W., New Richmond, Wis. 1882
Erdman, W. B., Macungie, Pa. 1880
Erich, A. F., Baltimore, Md. 1880
Evans, Thos. W., Madison, Wis. 1884
Evans, T. R., Pittsburg, Pa. 1884
Evans, J. R., Delphos, Ohio. 1883
Evans, W. C., Erie, Pa. 1883
Evans, E. B., Greencastle, Ind. 1882
Evans, O. E., Gowrie, Iowa. 1882
Evans, Earl, Winchester, N. H. 1880
Evans, Edw. L., Philadelphia, Pa. 1881
Evans, I. Newton, Hatboro, Pa. 1876
Evans, James, Florence, S. C. 1881
Evans, Thomas B., Baltimore, Md. 1872
Evans, Warwick, Washington, D. C. 1870
Evans, W. H., Sedalia, Mo. 1880
Evans, W. W., Oxford, Ga. 1879
Eve, Duncan, Nashville, Tenn. 1879
Eve, Joseph A., Augusta, Ga. 1848
Eve, Paul F., Nashville, Tenn. 1882
Everhard, N. S., Wadsworth, Ohio. 1874
Essig, N. Fred., Plattsburg, Mo. 1875
Estabrook, T. L., Rockland, Me. 1879
Erwin, A. J., Mansfield, Ohio. 1874
Ewing, C. C., Aberdeen, Miss. 1879
Ewing, D. C., Batesville, Ark. 1880
Ewing, R. B., West Grove, Pa. 1881
Ewing, Jas. B., Uniontown, Pa. 1884

Fairbank, Henry C , Flint, Mich. 1873
Fairbanks, J. R., Amsterdam, N. Y. 1880
Fairchild, D. S., Ames, Iowa. 1882
Farnham, Horace P., New York, N.Y. 1864
Farnham, Le Roy D., Candor, N. Y. 1881
Farnsworth, P. J., Clinton, Iowa. 1873
Farrington, John M., Trumansburg, N.Y. 1878
Farrelly, E. M., Townville, Pa. 1883
Fasquielle, Louis W., St. John's, Mich. 1874
Fasset, O. F., St. Albans, Vt. 1880
Fay, John, Altoona, Pa. 1858
Felker, J. B., Amboy, Ill. 1875
Fenger, Christian, Chicago, Ill. 1882
Fenn, C. T., Chicago, Ill. 1883
Fenton, Thos. H., Philadelphia, Pa. 1884
Ferguson, E. D., Troy, N. Y. 1880
Ferguson, F. B., Deer Island, Me. 1880
Ferguson, J. W., Congress, Ohio. 1883
Ferree, F. M., Indianapolis, Ind. 1883
Ferrell, C. B., Columbus, Ohio. 1883
Ferro, C. M., Tracy, Minn. 1882
Ferris, A. B., New Paris, Ohio. 1884
Fessenden, C. S. D., U. S. Marine Hospital Service, St. Louis, Mo. 1853
Field, A. G., Des Moines, Iowa. 1882
Field, H. M., Newton, Mass. 1881
Fifield, M., Centreville, R. I. 1880
Finch, J. E., Hastings, Minn. 1876
Finch, P., Ellenville, N. Y. 1876
Findley, Wm. Martin, Altoona, Pa. 1869
Fink, Isaac W., Hillsboro, Ill. 1876
Finley, S. Moore, Ft. Brown, Tex. 1872
Finley, W. R., Altoona, Pa. 1883
Firestone, J. L , Salem, Ohio 1880
Firestone, L., Wooster, Ohio 1878
Fischer, Emil, Philadelphia, Pa. 1868
Fish, Jas. S., Alexandria, La. 1880
Fisher, Charles H., Providence, R. I. 1858
Fisher, George J., Sing Sing, N. Y. 1858
Fisher, Theo. W., Boston, Mass. 1876
Fisher, B. H , Steubenville, Ohio 1883
Fischel, W. E., St. Louis, Mo. 1884
Fisk, M. H , DePere, Wis. 1882
Fisler, S. F., Clayton, N. J. 1881
Fite, C. C., Nashville, Tenn. 1884
Fitch, T. Davis, Chicago, Ill. 1884
Fitch, L. G., Charles City, Iowa 1884
Fitch, G. N., Logansport, Ind. 1878
Fitch, W. H., Rockford, Ill. 1878
Fitz, R. H., Boston, Mass. 1884
Flagg, S. D., St. Paul, Minn. 1878
Flandrau, Thomas M., Rome, N. Y. 1878
Flanner, T. U., Hancock, Mich. 1882
Flint, Austin, New York, N. Y. 1847
Flinn, W. D., Redwood Falls, Minn. 1883
Flint, Austin, Jr., New York, N. Y. 1860
Flint, Jas. M , U. S. Navy 1878
Flint, John S., Boston, Mass. 1865
Flood, P. H., Elmira, N. Y. 1880
Floyd, R. G., Boulder, Col. 1877
Follett, Alfred, Greenville, Ohio 1881
Folwell, Mahlon B., Buffalo, N. Y. 1878
Fontain, A. W., New Canton, Va. 1881
Foord, H., Cazenovia, N. Y. 1880
Foote, D. E , Belvidere, Ill. 1878
Forbes, Samuel F., Toledo, Ohio 1874
Ford, C. M., Washington, D. C. 1880
Ford, Corydon L., Ann Arbor, Mich. 1874
Ford, Sample, Wheeling, W. Va. 1875
Forbes, Wm. Smith, Philadelphia, Pa. 1884
Formad, Henry F., Philadelphia, Pa. 1884
Forwood, Wm. S., Darlington, Md. 1884
Fortner, B. F., Fayetteville, Ark. 1876
Forwood, W. H., U. S. Army, Chicago, Ill. 1879
Fordyce, B. A., Union Springs, N. Y. 1880
Foreman, J. M., Jonesburgh, Mo. 1873
Foss, S. A., Pleasant Ridge, Ky. 1883
Fort, J. M., Paris, Texas. 1875
Foster, A. H., Chicago, Ill. 1877
Foster, Wm. S., Pittsburg, Pa. 1877
Foster, Eugene, Augusta, Ga. 1883
Foster, Thos. A., Portland, Me. 1882
Foulke, Joseph, Buckingham, Pa. 1872
Foulkes, J. F., Oakland, Cal. 1881
Foulke, M. C., N. Georgetown, Ohio. 1883
Fowler, S. W., Delaware, Ohio. 1883
Fowler, Josiah, La Fayette, Ind. 1882
Fowler, Geo. R., Brooklyn, N. Y. 1880
Fox, Philip, Madison, Wis. 1877
Fox, Wm., Milwaukee, Wis. 1876
Fox, W. R. San Bernandino, Cal. 1883
Fox, Chas. Jas., Willimantic, Conn. 1880
Fox, Geo. Henry, New York, N. Y. 1880
Fox, Lorenzo Smith, Lowell, Mass. 1884
Francis, D. R., Mansfield, Ohio. 1883
Fraser, D. E., Brainerd, Dakota Ter.
Frank, C. P., Detroit, Mich. 1883
Franklin, G. S., Chillicothe, Ohio. 1883
Franklin, Benj., Bloomington, Ill. 1882
Franklin, Chas. H., Union Springs, Ala. 1884
Franzoni, C. W., Washington, D. C. 1872
Fraunfeller, Jos., Canton, Ohio. 1883
Free, Spencer, M., Dagus Mines, Pa. 1884
Freeland, N. H., Tarrytown, N. Y. 1876
Freeman, J. A., Wellington, Ill. 1882
Freeman, B. R., Decatur, Ind. 1883
Freeman, Ed. D., Laurenceburg, Ind. 1884
French, James M., Cincinnati, Ohio. 1884
French, Jas. M., Cincinnati, Ohio. 1883
French, S. W., Milwaukee, Wis. 1883
Frenth, S. H., Amsterdam, N. Y. 1883
French, Jno. O., Hanover, Mass. 1854
French, Morris S., Philadelphia, Pa. 1880
French, Simeon S., Battle Creek, Mich. 1877
French, G. F., Minneapolis, Minn. 1882
Fricke, Albert, Philadelphia, Pa. 1872
Friedrichs, Geo. J., New Orleans, La. 1884
Friedrich, Leon L., Washington, D. C. 1884
Friedenwald, A., Baltimore, Md. 1884
Frost, Henry, Marshall, Va. 1884
Fry, Henry D., Washington, D. C. 1884
Frissell, John, Wheeling, W. Va. 1850
Frissell, C. M., Wheeling, W. Va. 1883
Frost, G. W., Emporia, Kansas. 1876
Frothingham, George E., Ann Arbor, Mich. 1874
Fruth, D. O., Wauseon, Ohio. 1883
Frye, Peter Y., Oyster Bay, N. Y. 1880
Fryer, B. E., U. S. Army, Ft. Leavenworth, Kan. 1878
Fuller, A. J., Bath, Me. 1878
Fuller, A. B., Londonville, Ohio. 1884
Fuller, Horace S., Hartford, Conn. 1884
Fuller, F. G., Lincoln, Neb. 1884
Fullerton, G. E., Paris, Iowa. 1882
Fulton, T. H. Sandy Lake, Pa. 1883
Fulton, J. F., St. Paul, Minn. 1883
Fulton, A. L., Ft. Scott, Kan. 1883
Funkhouser, R. M., St. Louis, Mo. 1884
Fundenberg, W. F., Pittsburg, Pa. 1884
Fundenberg, G. B., Pittsburg, Pa. 1884
Furniss, J. P., Selma, Ala. 1879

Gable, Isaac C., York, Pa. 1880
Gaddis, Levi S., Monroeton, Pa. 1884
Gage, M. R., Sparta, Wis. 1881
Gaines, Edmund Pendleton, Mobile, Ala. 1869
Galloway, Hector, Fargo, D. T. 1884
Galloway, W. T., Eau Claire, Wis. 1884
Gallaher, Thos. J., Pittsburg, Pa. 1866
Galt, Thos., Rock Island, Ill. 1873
Gant, Harris A., Water Valley, Mo. 1879
Garcelon, Alonzo, Lewiston, Me. 1873
Gardner, C. T., Providence, R. I. 1880
Garnett, Alex., Y. P., Washington, D.C. 1852
Garratt, Alfred C., Boston, Mass. 1876
Garrish, John Pool, New York, N. Y. 1853
Garver, John J.. Indianapolis, Ind. 1884
Garland, Geo. M., Boston, Mass. 1884
Garin, M. F., Boston, Mass. 1884
Gay, N., Columbus, Ohio. 1884
Gay, C. C. F., Buffalo, N. Y. 1876
Gaylord, L. Merriman, Sodus, N. Y. 1860
Gauntt, Franklin, Burlington, N. J. 1876
Gazzo, John B. C., Thibodeaux, La. 1884
Geddings, W. H., Aiken, S. C. 1877
Geiger, Jacob L., St Joseph, Mo. 1878
George, A. Speirs, Richmond, Va. 1880
Gemmill, J. M. W., Tyrone, Pa. 1884
Gerhard, J. Z., Harrisburg, Pa. 1878
Gibbons, Jas. E., Baltimore, Md. 1884
Gibbs, L. H., Scranton, Pa. 1881
Gibbs, Wallington S., Omaha, Neb. 1884
Gibbs, J. W., Scranton, Pa. 1884
Gibson, R. M., Portsmouth, Ohio. 1883
Gibson, Wm., Alexandria, Va. 1884
Giddings, A. W., Anoka, Minn. 1884
Gifford, William R., Erie, Mich. 1884
Gillett, O. F., Iowa City, Ia. 188

Gibney, V. P., New York, N. Y. 1881
Gibson, J. St. P., Staunton, Va. 1881
Giddings, Thos., Housatonic, Mass. 1876
Gihon, Albert L., U. S. Navy. 1876
Gilbert, J. H., Quincy, Mass. 1876
Gill, H. Z., Cleveland, Ohio 1876
Gillen, Richard H., Wabash, Ind. 1881
Gahan, M. J., Grand Island, Neb. 1882
Ghent, H. C., Belton, Texas. 1882
Gardner, J. K., N. Hampton, Iowa. 1882
Gale, C. T., New Brighton, Pa. 1882
Gamble, Jas., Le Claire, Iowa. 1882
Getz, H. L., Marshalltown, Iowa. 1882
Gamble, Thos. D., Wheatland, Iowa. 1882
Gaston, Emma F., Chicago, Ill. 1882
Gapen, Clark, Madison, Wis. 1882
Gardiner, C., Hampton, Conn. 1883
Gawne, A. J., Sandusky, O. 1883
Gabriel, J. F., Piqua, O. 1883
Gilbert, J. L., Kendallville, Ind. 1883
Gibson, R. D., Youngstown, O. 1884
Glisan, R., Portland, Oregon 1882
Gillis, William, Fort Covington, Ky. 1884
Gordon, John A., Quincy, Mass. 1884
Goodman, Sanford F., Maxwell, Iowa. 1884
Godding, Walter W., Washington, D.C. 1884
Goode, B. P. Cincinnati, O. 1884
Gove, Geo. S. Whitefield, N. H. 1884
Graham, Douglas, Boston, Mass. 1884
Graham, F. Ridgely, Chester, Pa. 1884
Grayston, B. H. B., Huntingdon, Ind. 1884
Green, Jos. C., Buffalo, N. Y. 1884
Graefe, Chas., Sandusky, Ohio. 1884
Graves, Eli E., Boscanan, N. H. 1884
Gray, Jas. A., Atlanta, Ga. 1884
Good, A. H., Selma, Ohio. 1883
Glover, E. E., Terre Haute, Ind. 1883
Gordon, Seth C., Portland, Me. 1883
Green, J. J., Allegheny, Pa. 1883
Goodum, A. E., Rockford, Ill. 1883
Glenn, Jas. A., Tallula, Ill. 1882
Gilman, A. O., St. Cloud, Minn. 1882
Gillett, S. C., Aurora, Ill. 1882
Gillette, W. R, New York, N. Y. 1879
Gilman, J. H., Lowell, Mass. 1881
Gilman, Judson, Baltimore, Md. 1880
Gilmore, A. P., Chicago, Ill. 1877
Glasgow, W. Carr, St. Louis, Mo. 1875
Glass, J. H., Utica, N. Y. 188[illegible]
Gleitsmann, D. W., New York, N. Y. 1879
Glenn, W. F., Nashville, Tenn. 1880
Gobrecht, Wm. H., Washington, D.C. 1858
Godfrey, E. L. B., Camden, N. J. 1881
Goodbrake, C., Clinton, Ill. 1876
Goodell, Wm., Philadelphia, Pa. 1872
Goodwin, A. E, Rockford, Ill. 1876
Goodrich, E. C., Augusta, Ga. 1880
Gordon, Thos. W., Georgetown, O. 1875
Gorgas, Albert C., U. S. Navy, Chelsea, Mass. 1875
Gould, J. W., Albany, N. Y. 1881
Gouley, J. W S., New York, N. Y. 1873
Govan, Wm., Stoney Point, N. Y. 1860
Graetlinger, A., Milwaukee, Wis. 1876
Graham, Samuel, Butler, Pa. 1878
Grant, W. W., Davenport, Iowa. 1873
Gray, John P., Utica, N. Y. 1870
Green, James S., Elizabeth, N. J. 1872
Green, John, St. Louis, Mo. 1873
Green, Traill, Easton, Pa. 1853
Greene, G. H, Marshall, Mich. 1876
Greenley, T. B., Orell, Ky. 1877
Greenshields, Wm., Romeo, Mich. 1874
Green, J. W., Arlington, Ind. 1882
Grainger, W. H., E. Boston, Mass. 1882
Granger, W. D., State Ins. Asyl., N.Y. 1882
Grayston, F. S. C., Huntingdon, Ind. 1882
Gray, Thos. H., Erie, Pa. 1883
Gregg, Vincent, H., Connelsville, Ind. 1883
Greenameyer, P. S., Smithfield, O. 1883
Greenawall, G. L., Ft. Wayne, Ind. 1883
Gilliford, R. H., Allegheny, Pa. 1883
Gillett, R. W., Danville, Ill. 1883
Gordon, J. A., Quincy, Mass. 1883
Guibor, Charles H., Beloit, Kansas. 1884
Guice, M. L., Fayette, Miss. 1884
Grover, F. J., Big Rapids, Mich. 1844
Gunther, Julius, Quincy, Ill. 1884
Griswold, Gaspar, New York, N. Y. 1884
Guth, M. S., Warren, Pa. 1883
Groves, L. S., Afton, Iowa. 1883
Guerin, Jno., Chicago, Ill. 1882
Griffith, B. M., Springfield, Ill. 1882
Guthrie, A., Pella, Iowa. 1882
Guyton, B. A., Jr., Sioux City, Iowa. 1882
Grimes, W. S., Wapello, Iowa. 1882
Gregg, Jas. S., Ft. Wayne, Ind. 1867
Gregory, E. H., St. Louis, Mo. 1872
Griffin, C. C., Vinton, Iowa. 1877
Griffin, E. L., Chicago, Ill. 1874
Griggs, A. W., West Point, Ga. 1879
Grimes, Geo. J., Columbus, Ga. 1879
Grissom, Eugene, Raleigh, N. C. 1875
Griswold, E., Sharon, Pa. 1872
Griswold, J. B., Grand Rapids, Mich. 1876
Gross, Samuel W., Philadelphia, Pa. 1880
Grove, J. H., Philadelphia, Pa. 1867
Gruening, Emil, New York, N. Y. 1880
Guernsey, De Sault, Amenia, N. Y. 1884
Gundrum, F., Ionia, Mich. 1880
Gunn, Moses, Chicago, Ill. 1874
Gunnell, F. M., U. S. N., Washington, D. C. 1876
Gutch, Wm., Albia, Iowa. 1876
Guthrie, H. R., Sparta, Ill. 1880
Gwyn, C. L., Courtney, Texas. 1881

Hadden, A., New York, N. Y. 1880
Hagadorn, S. H., Bay City, Mich. 1880
Hagerty, Jos. L., Fremont, Ind. 1881
Hakes, Harry, Wilkesbarre, Pa. 1880
Halberstadt, A. H., Pottsville, Pa. 1876
Hall, A. D., Philadelphia, Pa. 1876
Hall, J. C., McKinneysville, Miss. 1877
Haller, F. B., Vandalia, Ill. 1859
Halley, George, Kansas City, Mo. 1878
Halsey, Calvin C., Montrose, Pa. 1864
Hall, J. C., Monroe, Wis. 1882
Hall, C. Lester, Marshall, Mo. 1882
Hackett, C. J., Le Mars, Iowa. 1882
Hagadorn, A. F., West Bay City, Mich. 1883
Hall, R. W., Warrington, W. Va. 1883
Hagner, Daniel R., Washington, D. C. 1884
Hagnil, J. E., New Paris, Ohio. 1884
Haldeman, F. D., Ord, Nebraska. 1884
Hartman, W. B., St. Mary's, Pa. 1884
Hardin, Robt. A., Savannah, Tenn. 1884
Hartigan, Jas. F., Washington, D. C. 1884
Harris, H. H., Ennis, Tenn. 1884
Hart, Hugh H., Wooster, Ohio. 1884
Harlan, A. W., Chicago, Ill. 1884
Harris, B. H., Groveland, Ill. 1884
Hancock, J. T., Sheraquatah, Miss. 1884
Hamilton, G. S., Rappahannock, W. Va. 1884
Harrison, Geo. B., Washington, D. C. 1884
Harman, J., Warren, O. 1883
Hamilton, B. F., Emberton, Pa. 1883
Hamilton, John B., Washington, D. C. 1883
Hamilton, Geo., Bachelor, Mo. 1882
Hamilton, A. A., Marion, Ind. 1882
Hamilton, J. L., Stone Mountain, Ga. 1882
Hanna, Jno., Greencastle, Ind. 1882
Hamilton, S. M., Monmouth, Ill. 1882
Hamilton, J. L., Peoria, Ill. 1882
Hamill, Geo. W., Baltimore, Md. 1881
Hamill, R. C., Chicago, Ill. 1863
Hamilton, Frank H., New York, N. Y. 1877
Hamilton, George, Philadelphia, Pa. 1872
Hamilton, Hugh, Harrisburg, Pa. 1878
Hamilton, Increase S., Tecumseh, Mich. 1874
Hamilton, J. W., Columbus, Ohio. 1880
Hanawalt, G. P., Des Moines, Iowa. 1878
Hand, D. W., St. Paul, Minn. 1860
Hani, W. F., Middlebury, Ind. 1878
Hanna, W. M., Henderson, Ky. 1873
Hannan, J. C., Hoosick Falls, N. Y. 1880
Hansmann, Theodore, Washington, D. C. 1868
Hard, Abner, Aurora, Ill. 1877
Harding, Myron H., Lawrenceburg, Ind. 1859
Hardy, Benjamin F., San Francisco, Cal. 1871
Harlan, H., Baltimore, Md. 1881
Harper, H. F., Merom, Ind. 1876
Harrington, D. W, Buffalo, N. Y. 1878
Harris, Alex., Jeffersonton, Va. 1881
Harris, E. M, Providence, R. I. 1880
Harrison, B. F. Wallingford, Conn. 1880
Harrison, E. B., Napoleon, Ohio. 1874
Harrison, Geo. Tucker, New York, N. Y. 1881
Harrison, J. J., London, Tenn. 1879
Hart, B. F., Marietta, Ohio. 1872
Hart, Ira F., Elmira, N. Y. 1878
Hartley, J. D., San Francisco, Cal. 1874
Hartman, J. H., Baltimore, Md. 1884
Harvey, O. F., Wilkesbarre, Pa. 1880
Harvey, T. B., Indianapolis, Ind. 1876
Harvie, L. E., Danville, Va. 1881
Harwood, E. C., New York, N. Y. 1872
Haskell, P. Sprague, St. Paul, Minn. 1876
Haskell, W. A., Alton, Ill. 1877
Harvey, P. F., U. S. A., Ft. Snelling, Minn. 1882
Hanawalt, H. E, Galena, Kan. 1882
Hart, R. J., Low Moor, Iowa. 1882
Hard, E. G. Medina, Ohio. 1882
Hart, H. W. Council Bluffs, Iowa. 1882
Hastings, J. W. Warren, Mass. 1882
Haven, Sam'l R., Bloomington, Ill. 1882
Hardman, L. G., Harmony Grove, Ga. 1883
Harvey, B. F., Mansfield, O. 1883
Harrington, C., Boston, Mass. 1883
Hearn, W. Jos., Philadelphia, Pa. 1884
Hedders, Jas. W., St. Joseph, Mo. 1884
Hedges, Thomas M., Grinnell, Iowa. 1884
Henry, Wm. C, Aurora, Ind. 1884
Heilman, E. C., Iowa Grove, Iowa. 1884
Healy Thos. M., Cumberland, Md. 1884
Hebbard, E. A., Grand Rapids, Mich. 1884
Hatfield, M. P., Chicago, Ill. 1884
Hawkins, S. B., Americus, Ga. 1884
Hathaway, Harrison, Toledo, Ohio. 1883
Hay, Jacob, York, Pa. 1883
Hawn, H. H., Youngstown, Ohio. 1883
Hay, Walter, Chicago, Ill. 1882
Hayden, J. W., Libertyville, Iowa. 1882
Hawes, Jesse, Greeley, Col. 1882
Hatch, Fred. W., Sacramento, Cal. 1871
Hatfield, Nathan L., Philadelphia, Pa. 1848
Hausmann, Wm., Ashford, Wis. 1878
Hauenstein, John, Buffalo, N. Y. 1878
Hawkins, W. H., Texarkana, Ark. 1879
Hay, Thomas, Philadelphia, Pa. 1866
Hayes, I. Minis, Philadelphia, Pa. 1881
Hays, G. C., Hillsboro', Ind. 1880
Haywood, Herbert, Raleigh, N. C. 1881

Hazen, E. H., Davenport, Iowa. 1872
Hazlett, Robert W., Wheeling, W.Va. 1870
Hazlewood, Arthur, Grand Rapids, Mich. 1874
Heard, Thos. Jefferson, Galveston, Tex. 1867
Hearne, J. C., Hannibal, Mo. 1880
Heddens, W. I., St. Joseph, Mo. 1877
Heighway, Archibald E., Cincinnati, Ohio. 1858
Heilman, Salem, Sharon, Pa. 1878
Helm, John H., Peru, Ind. 1871
Henderson, Jas. P., Newville, Ohio. 1856
Henderson, Wm. Warton, Covington, Ky. 1869
Hendrick, H. C., McGrawville, N. Y. 1876
Henley, A., Fairmount, Ind. 1877
Henry, F. P., Philadelphia, Pa. 1880
Henry, S. L., New Orleans, La. 1878
Heritage, J. Down, Glassboro, N. J. 1880
Herman, A. J., Carlisle, Pa. 1874
Herndon, Z. B., Richmond, Va. 1881
Herr, A. J., Lancaster, Pa. 1881
Herr, M. L., Lancaster, Pa. 1880
Herrick, H. J., Cleveland, Ohio. 1877
Henry, G. R., Burlington, Iowa. 1882
Hawes, A. M., Detroit, Mich. 1883
Hazlett, J. C., Bellevernon, Pa. 1883
Helmick, Jos, Harrisburg, Ohio. 1883
Heath, W. H., Scranton, Pa. 1883
Henry, Morris H., New York, N.Y. 1883
Hemenway, H. B., Kalamazoo, Mich. 1883
Hermany, P., Mahanoy City, Pa. 1883
Hengst, D. A., Pittsburg, Pa. 1883
Henry, W. C., Anna, Ind. 1883
Heronnan, W. J. Ann Arbor, Mich. 1883
Haynie, Jacob, 1884
Hazen, W. C., Haddam, Ct. 1884
Hildebrand, C. G., Wintertown, Pa. 1884
Hill, Hampton E., Saco, Me. 1884
Hiron, R. S. W., Smyrna, Del. 1884
Hill, W. N., Baltimore, Md. 1884
Hildreth, C. C., Zanesville, Ohio. 1884
Hill, Chas., Pine Island, Minn. 1884
Hicks, Robert, J., Caranova, Va. 1884
Holden, R. T., Washington, D. C. 1884
Holmes, H., Lexington, Mass. 1884
Hobby, C. M., Iowa City, Iowa. 1884
Holmes, Walker H., Waterbury, Ct. 1884
Hoffmann, Joseph H., St. Mary's, Pa. 1884
Hildreth, W. H., Newton, Mass. 1884
Hildreth, John L., Cambridge, Mass. 1884
Hickman, Thos. A., Vandalia, Ill. 1884
Hill, Robert J., St. Louis, Mo. 1884
Hobday, W. A., Altoona, Pa. 1883
Holden, W. H., Zanesville, O. 1883
Hildreth, C. C., Zanesville, O. 1883
Higgins, C. B., Peru, Ind. 1883
Hill, H. D., Augusta, Kas. 1883
Hetzler, J. N., Celina, O. 1883
Hewitt, C. N., Red Wing, Minn. 1882
Herron, W. M., Allegheny, Pa. 1870
Hess, L. P., Marion, Ind. 1877
Hewett, R. C., Louisville, Ky. 1859
Hewson, Addinell, Philadelphia, Pa. 1855
Hibberd, James Farquhar, Richmond, Ind. 1864
Hickman, N., Philadelphia, Pa. 1881
Hildershide, Geo. N., Arcadia, Wis. 1881
Hildreth, E. A., Wheeling, W. Va. 1850
Hill, Edwin, A., E. Killingly, Conn. 1864
Hill, E. D., Plymouth, Mass. 1881
Hill, E. H., Lewiston, Me. 1876
Hill, Levi G., Dover, N. H. 1876
Hills, T. Morton, Willimantic, Conn. 1870
Hims, Isaac N., Cleveland, O. 1876
Hinkle, A. G. B., Philadelphia, Pa. 1872
Hinkle, J. R., Sullivan, Ind. 1876
Hinton, J. H., New York, N. Y. 1876
Hinton, S. A., Petersburg, Va. 1881
Hitchcock, F. E., Rockland, Me. 1880
Hitchcock, Homer O., Kalamazoo, Mich. 1863
Hodge, J. A., Henderson, Ky. 1859
Hodgman, Abbott, New York, N. Y. 1876
Hodgson, G. W., White Plains, N.Y. 1880
Hoeltge, A., Cincinnati, O. 1875
Hoffman, D. B., San Diego, Cal. 1871
Holcomb, W. F., New York, N. Y. 1876
Holland, Thomas E., St. Louis, Mo. 1880
Hollister, E. O., East Bloomfield, N.Y. 1881
Hollister, John H., Chicago, Ill. 1873
Holmes, E. L., Chicago, Ill. 1877
Holmes, H. R., Salem, Oregon. 1880
Holt, A. F., Boston, Mass. 1880
Holman, W. J., Cedar Rapids, Iowa. 1882
Hogeboom, C. E., Eau Claire, Wis. 1882
Hill, Charles, Pine Island, Minn. 1882
Heogh, Knut, La Crosse, Wis. 1882
Hinsey, J. C., Ottumwa, Iowa. 1882
Hill, Wm., Bloomington, Ill. 1882
Holmes, J. D., Audubon, Iowa. 1882
Hill, Gershom H., Independence, Iowa. 1882
Hobart, A. J, Clinton, Iowa. 1882
Holston, J. G. F., Zanesville, O. 1882
Hiersordt, F. D., Bay City, Mich. 1883
Hiner, S. B., Lima, O. 1883
Hixson, M. M., Dupont, O. 1883
Howard, E. W., Akron, O. 1884
Howard, Noble P. W. Greenfield, Ind. 1884
Hubbard, B., Plymouth, Mass. 1884
Hudson, Taylor, Belton, Tex. 1884
Huger, Wm. H., Charleston, S. C. 1884
Huff, Alice E., Ashland, Neb. 1884
Hostetter, Peter, Omaha, Neb. 1884
Hope, Robert M., Mercer, Pa. 1884
Horton, N. N., Kansas City, Mo. 1884
Hopkins, Jas. A., Milton, Del. 1884
Houston, J. Wilks, Oxford, Pa. 1884
Howell, Daniel H., Atlanta, Ga. 1884
Holt, Wm. F., Macon, Ga. 1884
Holton, Henry D., Brattleboro, Vt. 1884
Holton, W. M., New Harmony, Ind. 1884
Hooper, F. H., Boston, Mass. 1884
Hooper, P. O., Little Rock, Ark. 1884
Hooper, W. D., Liberty, Va. 1884
Hopkins, G. G., Brooklyn, N. Y. 1884
Hopkins, John F., Chicago, Ill. 1884
Hopkins, Thos. S., Thomasville, Ga. 1884
Hopkins, H. R., Buffalo, N. Y. 1884
Horner, A. A., Helena, Ark. 1883
Horner, F., Jr., Salem, Va. 1883
Horr, Asa, Dubuque, Iowa. 1883
Horton, George F., Terrytown, Pa. 1883
Horton, Henry L., New York, N. Y. 1883
Hosack, J. P., Mercer, Pa. 1883
Hough, Geo. T., New Bedford, Mass. 1882
Hovey, B. L, Rochester, N. Y. 1870
Howard, Flodoardo, Washington, D.C. 1877
Howard, G. C., Lawrence, Mass. 1859
Howard, H. C., Akron, Ohio. 1855
Howard, Noble P., Sr., Greenfield, Ind. 1880
Howard, R. E., Durant, Miss. 1880
Howard, R. J., Pryorsburg, Ky. 1881
Howard, Wm. T, Baltimore, Md. 1881
Hoyt, W. D., Rome, Ga. 1850
Hubbard, S. G., New Haven, Conn. 1864
Hubbard, S. T., New York, N. Y. 1881
Hudson, Salmon, Medina, Ohio. 1876
Huggins, W. Q., Sanborn, N. Y. 1876
Hughes, C. H., St. Louis, Mo. 1876
Hughes, J. W., Sharpsburg, Pa. 1874
Humphrey, Wesley, Moberly, Mo. 1873
Huffman, D. C., McKeesport, Pa. 1882
Hosmer, A., Chicago, Ill. 1882
Hughes, J. C., Keokuk, Iowa. 1882
Howland, G. W., Flint, Mich. 1882
Hull, M. D., Arrowsmith, Ill. 1882
Howe, F. A., Newburyport, Mass. 1883
Howard, Levi, Chelmsford, Mass. 1883
Hough, W. S., Cuyahoga Falls, Ohio. 1883
Hughes, T. M., Amesville, Va. 1883
Humiston, W. H., Cleveland, O. 1883
Howard, E. W., Akron, Ohio. 1883
Hoff, J. W., Pomeroy, Ohio. 1883
Hyde, F. E., New York, N. Y. 1884
Hurst, S. J., Genevieve, Ill. 1884
Hyatt, E. H., Delaware, Ohio. 1883
Hunter, T. S., Ashland, Ohio. 1883
Hunt, A. H., Wooster, Ohio, 1883
Hunt, J. W, Alexandria, Ind. 1883
Hutchins, Eugene A., Minneapolis, Minn. 1883
Hurst, D. A, Oskaloosa, Iowa, 1882
Huntsman, H. C., Oskaloosa, Iowa. 1882
Hutchinson, E. L., Bloomington, Ill. 1882
Hunt, M. N., Waseca, Minn. 1881
Hunt, W. A., Anderson, Ind, 1882
Hunter, Warren, Hampton, Ill. 1882
Hunt, G. F., West Bend, Wis. 1882
Humphreys, G. L, Irwin Station, Pa. 1878
Hun, Thomas, Albany, N. Y. 1853
Hunt, C. C., Dixon, Ill. 1877
Hunt, David, Boston, Mass. 1880
Hunt, Ebenezer K., Hartford, Conn. 1860
Hunt, Ezra M., Trenton, N. J. 1876
Hunt, J. H., New York, N. Y. 1880
Hunt, L. C., Parkersburg, W. Va. 1878
Hunt, Simeon, E. Providence, R. I., 1881
Hunt, W. A., Terra Haute, Ohio. 1880
Hunter, D. C., Batavia, N. Y 1878
Hunter, Jas. B., New York, N. Y. 1878
Hurd, A., Findlay, Ohio. 1874
Hurlbut, Vincent L., Chicago, Ill. 1863
Huselton, W. S., Allegheny, Pa. 1872
Husted, Nathaniel C., Tarrytown, N.Y. 1856
Hutchinson, W. R., Enosburg Falls Vt. 1877
Hutchison, Jo. C., Brooklyn, N. Y. 1876
Hyatt, Frank, Washington, D. C. 1881
Hyde, Frederick, Cortland, N. Y. 1847
Hyde, Geo. S., Boston, Mass. 1865
Hyde, James Nevins, Chicago, Ill. 1877

Ingals, E., Chicago, Ill. 1877
Ingals, E. Fletcher, Chicago, Ill. 1877
Ingersoll, Ellen A., Canton, Ill. 1878
Ingraham, H. D., Buffalo, N. Y. 1876
Irish, John C., Lowell, Mass. 1878
Isham, Ralph N., Chicago, Ill. 1859
Iutzi, Joseph, Richmond, Ind. 1878
Ives, H. M., Sayville, L. I., N. Y. 1874
Ireland, W. H., Camden, N. J. 1884
Ingersoll, D. B., May's Landing, N.J. 1884
Irwin, Luther M., La Fayette, Ind. 1884
Irwin, Edw. H., Lodi, Wis. 1884
Irwin, Thos, Moberly, Mo. 1884
Ish, Milton A., Neabsco Mills, Va. 1884

Jefferson Herbert P., Lowell, Mass. 1884
Jepson, Samuel L. Wheeling, W. Va. 1884
Johnson, Thos. M., Buffalo, N. Y. 1884
Johnson, Frank W., Boston, Mass. 1884
Jackson, Edward, West Chester, Pa. 1884
Jackson, C. O., Victor, N. Y. 1884
Jackson, John H., Fall River, Mass. 1884
Jacobs, W. C., Akron, Ohio. 1883
Jacobs, L. D., Emporia, Kan. 1883
Jacobson, N., Syracuse, N. Y. 1883
Jackson, J. W., Sedalia, Mo. 1882
Jackson, A. Reeves, Chicago, Ill. 1877
Jackson, Samuel K., Norfolk, Va. 1881

Jacobi, Abraham, New York, N. Y. 1860
Jacobi, Mary Putman, New York, N. Y. 1880
Janes, D. W., Boston, Mass. 1877
Janes, Henry, Waterbury, Vt. 1871
Janeway, E. G., New York, N. Y. 1880
Janeway, John H., U. S. Army. 1881
Janney, W. S., Philadelphia, Pa. 1880
Janvrin, J. E., New York, N. Y. 1880
Jarvis, Geo. C., Hartford, Conn. 1872
Jarvis, Wm. C., New York, N. Y. 1881
Jenkins, G. F., Keokuk, Ia. 1873
Jenkins, Geo. W., Kilbourn City, Wis. 1879
Jenkins, R. H., Hogansville, Ga. 1880
Jenks, Edward Watrous, Detroit, Mich. 1863
Jennings, Roscoe Greene, Little Rock, Ark. 1869
Johnson, G. K., Grand Rapids, Mich. 1873
Johnson, H. A., Chicago, Ill. 1873
Johnson, Jos. Taber, Washington, D.C. 1876
Johnston, Christopher, Baltimore, Md. 1855
Johnston, D., Westport, Ky. 1875
Johnston, Geo. Ben., Richmond, Va. 1880
Jones, Talbot, St. Paul, Minn. 1882
Jelks, Jas. T., Hot Springs, Ark. 1882
Johnson, J P., Peoria, Ill. 1882
Jennings, W. H., Blossburg, Pa. 1882
Jenks, D. S., Plano, Ill., 1882
Johnson, S. C., Hudson, Wis. 1882
Johnson, John Thad., Atlanta, Ga. 1882
Jenkins, John F., Tecumseh, Mich. 1883
Johnson, F. S., Chicago, Ill. 1883
Johnson, O., Worthington, Ohio. 1883
Johnson, R. P., Canton, Ohio. 1883
Johnson, S., Ocean Grove, N. J. 1883
Johnston, W. W., Washington, D. C. 1884
Johnson, Geo. O., Maquoketa, Ia. 1884
Johnson, H. L. E., Washington, D. C. 1884
Jones, D. W., Portsmouth, N. H. 1884
Jones, Chas. H., Baltimore, Md. 1884
Jump, Sam. V., New Burlington, Ind. 1884

Kean, Norman L., Northwood, Ia. 1884
Kenyon, Geo. H., Providence, R. I. 1884
Kelly, Hiram R., Galion, Ohio. 1884
Kersey, Jonathan H., Stuart, Ia. 1884
Kendrick, Cyrus, Litchfield Corners, Me. 1884
Kendig, E. V., Haysville, Ohio. 1884
Kegley, Eugene A., Cedar Rapids, Ia. 1884
Kidd, W. G., Princeton, Ind. 1884
Johnston, W. A., Peoria, Ill. 1883
Jones, Frank S., Medina, Ohio. 1883
Jones, G. Wheeler, Danville, Ill. 1873
Jones, Henry Isaac, Scranton, Pa. 1878
Jones, H. Webster, Chicago, Ill. 1876
Jones, J. D., Newburg, Ohio. 1883
Jones, J. W., Wake Forest, N. C. 1881
Jones, M. O., Pittsburg, Pa. 1876
Jones, N. E., Circleville, Ohio. 1878
Jones, O. H., Mace, Ind. 1882
Jones, Philo E., Red Wing, Minn. 1873
Jones, R. E., Gomer, Ohio. 1882
Jones, Samuel J., Chicago, Ill. 1877
Jones, Toland, London, Ohio. 1883
Jones, T. W., Columbus, Ohio. 1883
Jones, W. K., Union Spring, Ala. 1881
Jones, W. W., Toledo, Ohio. 1856
Jordan, R. M., St. Louis, Mo. 1881
Judd, Herbert, Galesburg, Ill. 1882
Judd, Homer, Upper Alton, Ill. 1869
Judkins, Wm., Cincinnati, Ohio. 1881
Judson, A. B., New York, N. Y. 1876
Judson, E. A., New York. 1883
Jump, D. W., Plainfield, Ill. 1883

Kaiser, Aug., Detroit, Mich. 1876
Kaull, W. M., Princeton, Ill. 1882
Kay, T. W., Columbia, Pa. 1883
Keables, John T., Decatur, Mich. 1881
Kedder, C. W. B., Vergennes, Vt. 1883
Kedzie, Robert C., Lansing, Mich. 1872
Keen, L. S., La Porte, Ind. 1878
Keen, W. W., Philadelphia, Pa. 1876
Keller, J. Irwin, Hot Springs, Ark. 1877
Keller, Jas. M., Hot Springs, Ark. 1859
Kelley, J. R., Carthage, Ill. 1883
Kellogg, J. H., Battle Creek, Mich. 1882
Kelsey, W. J., Cassopolis, Mich. 1883
Kemp, J. D., Dayton, Ohio. 1867
Kempe, J. G., Rochester, N. Y. 1883
Kemper, G. W. H., Muncie, Ind. 1883
Kemper, M. C., Balcony Falls, Va. 1881
Kempton, W. D., Cincinnati, Ohio. 1882
Kendall, H. W., Quincy, Ill. 1872
Kendall, J. E., Parkersburg, W. Va. 1872
Kennedy, J. F., Des Moines, Iowa. 1882
Kent, J. B., Putnam, Conn. 1874
Kenyon, Frank, Scipio, N. Y. 1880
Kerr, J. W., York, Pa. 1884
Kerlin, Isaac N., Elwyn, Pa. 1865
Kersey, J. H., Stuart, Iowa. 1883
Ketchum, G. A., Mobile, Ala. 1880
Keve, W. R., Sidney, Ohio. 1883
Keyser, P. D., Philadelphia, Pa. 1870
Keyt, A. T., Walnut Hills, Cincinnati, Ohio. 1874
Kibbe, W. B., Marshalltown, Iowa. 1883
Kibler, C. B., Corry, Pa. 1876
Kidder, J. H., U. S. Navy. 1881
Kieffer, S. B., Carlisle, Pa. 1884
Kierulff, B. F., Marshalltown, Ia. 1882
Kilgore, J. C., Monmouth, Ill. 1882
Kimball, Amy Garrison, Jackson, Mich. 1878
Kimball, Gilman, Lowell, Mass. 1877
Kimmel, B. G., Winfield, Iowa. 1884
King, A. F. A., Washington, D. C. 1881
King, Cyrus B., Allegheny, Pa. 1884
King, E. H., West Liberty, Iowa. 1884
King, S. C., Ovid, Mich. 1880
King, Warren R., Philadelphia, Ind. 1884
King, Willis P., Sedalia, Mo. 1884
Kingsley, H. F., Scoharie, N. Y. 1880
Kinlock, R. A., Charleston, S. C. 1853
Kinnear, A. H., Metamora, Ill. 1877
Kinney, Elijah C., Norwich, Conn. 1880
Kirk, W. T., Atlanta, Ill. 1882
Kirker, John, Allegheny, Pa. 1883
Kirkland, Helen M. Upjohn, Kalamazoo, Mich. 1883
Kitchen, Jos. L., Wyant, Ill. 1884
Kittinger, M. S., Lockport, N. Y. 1883
Kittrell, Benj. F., Blackhawk, Miss. 1875
Kleinschmidt, C. H. A., Washington, D. C. 1880
Klingensmith, I. P., Derry Station, Pa. 1878
Knapp, James, Louisville, Ky. 1875
Knapp, S. O., Frankfort, Ind. 1884
Knapp, Wm., York, Neb. 1882
Kneeland, B. T., Dalton, N. Y. 1880
Knight, Amos, Eaton Rapids, Mich. 1884
Knight, Fred. I., Boston, Mass. 1884
Knight, S. R., Philadelphia, Pa. 1881
Knight, W. W., Sharon, Conn. 1880
Knipe, J. O., Norristown, Pa. 1880
Knott, J. M., Sioux City, Ia. 1878
Knott, John W., Sioux City, Iowa. 1884
Knowles, G. L., Magnon, Ill. 1884
Knox, John, Princeton, Ia. 1883
Knox, M. D., Milford, Tex. 1883
Knox, Wm. F., McKeesport, Pa. 1870
Koeller, Fred, Pittsburg, Pa. 1883
Koser, S. S., Williamsport, Pa. 1880

Kratz, Harvey, Hilltown, Pa. 1883
Krieger, G. L., Lebanon, O. 1883
Krise, Geo. M., Carlisle, Pa. 1884
Kuepper, E. W., Ligonier, Ind. 1874
Kurz, C. E., Bellaire, O. 1883
Kyle, Thomas M., Manchester, Ind. 1877

La Count, David, Chilton, Wis. 1873
Lacy, John M.. Santa Ana, Cal. 1879
Ladd, Horace, Philadelphia, Pa. 1880
Ladd, J. A., Traer, Iowa. 1882
Lamb, W. D., Southbridge, Mass. 1884
Lambert, John, Salem, N. Y. 1874
Landis, H. G., Columbus, O. 1881
Landis, Joseph A., Hollidaysburg, Pa. 1884
Landon, C. P., Westerville, O. 1883
Lane, Levi Cooper, San Francisco, Cal. 1871
Lane, Samuel G., Chambersburg, Pa. 1876
Lang, J., Marshalltown, Iowa. 1882
Langan, D., De Witt, Iowa. 1872
Lange, J. C., Pittsburg, Pa. 1883
Langlois, T. J., Wyandotte, Mich. 1874
Langworthy, Owen P., Clinton, La. 1869
Larch, H. B., Nebraska City, Neb. 1883
Larendon, J., Houston, Tex. 1875
Larimore, F. C., Mt. Vernon, O. 1872
Lash, J. W., Chillicothe, O. 1883
Latham, Henry, Lynchburg, Va. 1881
Latham, P. H., Weatherly, Pa. 1884
Lathrop, G. H., Wurtzboro, N. Y. 1880
Lathrop, Henry K., Royal Oak, Mich. 1884
Lathrop, J. M., Dover, O. 1884
Lathrop, M. C., Dover, N. H. 1881
Latimer, Thos. S., Baltimore, Md. 1884
Laughlin, C. E., Orleans, Ind. 1882
Laughton, S., Bangor, Me. 1876
Lawlor, W. M., San Francisco, Cal. 1883
Lawrence, J. B., New York, N. Y. 1882
Lawrence, Jonathan S., New York, N.Y. 1853
Lawrence, W. B., Batesville, Ark. 1879
Lazzell, James M., Fairmont, W. Va. 1868
Leach, H. E., Washington, D. C. 1881
Leach, Thos. W., Newmarket, N. H. 1878
Leadenham, J. W., Franklin, Pa. 1882
Leake, H. K., Dallas, Tex. 1880
Leale, C. A., New York, N. Y. 1876
Leaman, Brainard, Leaman Place, Pa. 1872
Leaman, Henry, Philadelphia, Pa. 1872
Leaming, James R., New York, N. Y. 1880
Leaming, John K., Cooperstown, N.Y. 1884
Leasure, Daniel, St. Paul, Minn. 1882
Ledlie, J. H., Pittsfield, Ill. 1878
LeDuc E. H., Downesgrove, Ill. 1882
Lee, Benjamin, Philadelphia, Pa. 1868
Lee, E. W., Chicago, Ill. 1882
Lee, John G., Philadelphia, Pa. 1882
Lee, M. F., Columbus, O. 1883
Lee, Wm., Baltimore, Md. 1881
Lee, Wm., Washington, D. C. 1866
Leech, Thomas F., Vountsville, Ind. 1875
Leete, J. M., St. Louis, Mo. 1873
Legare, Thomas, Charleston, S. C., 1884
Leigh, H. G., Petersburg, Va. 1881
Lemen, L. E., Georgetown, Col. 1877
Lemoyne, F., Pittsburg, Pa. 1883
Lenhart, W. C., Zanesville, O. 1883
Lenoir, B. B., Lenoir's, Tenn. 1849
Lenow, Jas. H., Little Rock, Ark. 1875
Leonard, B. B., West Liberty, O. 1883
Leonard, B. S., West Liberty, O. 1884
Leonard, C. Henri, Detroit, Mich. 1878
Leonard, C. S., Ravenna, Ohio. 1877
Leonard, E. K., Rockville, Ct. 1884
Leonard, M. B., East Boston, Mass. 1884
Leonard, R., Mauch Chunk, Pa. 1883
Leonhardt, J. S. Seward, Neb. 1884
Leslie, C. F., Windsor, Vt., 1880

Lester, T. B., Kansas City, Mo. 1872
Levick, James J., Philadelphia, Pa. 1864
Levis, Richard J., Philadelphia, Pa. 1880
Lewis, C. G., Ottumwa, Iowa. 1882
Lewis, Charles H., Jackson, Mich. 1877
Lewis, E. A., Brooklyn, N. Y. 1883
Lewis, F. L., Green Bay, Wis. 1882
Lewis, T. T., Bourbon, Ind. 1883
Liautard, A. F., New York, N. Y. 1880
Lichty, Daniel, Rockford, Ill., 1873
Lincoln, N. S., Washington, D. C. 1876
Lincoln, W. L., Wabashaw, Minn. 1882
Linde, Christian, Oshkosh, Wis. 1872
Lindsley, C. A., New Haven, Ct. 1884
Lindsley, J. Berrien, Nashville, Tenn. 1851
Lindsley, Kate, Battle Creek, Mich. 1883
Lindsley, Van S., Nashville, Tenn. 1880
Lindsly, Harvey, Washington, D. C. 1847
Lineaweaver, John K., Columbia, Pa 1879
Lining, C. E., Evansville, Ind. 1844
Link, John E., Terre Haute, Ind. 1877
Linn, G. A., Monongahela City, Pa. 1874
Linn, W. S., Bowensburg, Ill. 1874
Linthicum, Daniel A., Helena, Ark. 1873
Linvill, D. G., Columbia City, Ind. 1874
Lippincott, J. A., Pittsburg, Pa. 1880
Little, James L., New York, N. Y., 1880
Little, John, Bloomington, Ill. 1882
Little, Wm. R., Bloomsburg, N. J. 1884
Little, Wm. S., Philadelphia, Pa. 1881
Littlefield, H. H., Beardstown, Ill. 1875
Livingood, J. R., Rossville, Ill. 1883
Livingston, J. B., West Middlesex, Pa. 1874
Livingston, T. M., Mountville, Pa. 1876
Logan, A. J., Americus, Ga. 1884
Logan, Joseph P., Atlanta, Ga. 1863
Lomax, William M., Marion, Ind. 1850
Long, A. J., Whitehall, N. Y. 1878
Long, Jesse, Exeter, Ill. 1882
Longshore, W. R., Hazleton, Pa. 1884
Longstreth, M. F., Sharon Hill, Pa. 1876
Loomis, Alfred Lee, New York, N. Y. 1878
Loomis, G. T., Cascade, Wis. 1882
Loop, Dennis D., North East, Pa. 1878
Loose, D. N., Maquoketa, Iowa. 1884
Lothrop, Chas. H., Lyons, Iowa. 1873
Loughridge, Wm., Mansfield, O. 1883
Love, I. N., St. Louis, Mo. 1883
Love, John S., Springville, Iowa. 1877
Love, Wm. S., Winchester, Va. 1881
Lovejoy, J.W. H., Washington, D. C. 1882
Lovejoy, O. S., Haverhill, Mass. 1884
Loving, Starling, Columbus, Ohio. 1876
Lowman, John, Johnstown, Pa. 1853
Lowrie, W. L., Mapleton Depot, Pa.
Luce, W. O., Auburn, N. Y. 1880
Lundy, C. J., Detroit, Mich. 1883
Lusk, J. S., Harmony, Pa. 1883
Lusk, Wm. T., New York, N. Y. 1884
Lyman, C. N., Wadsworth, Ohio. 1874
Lyman, E. S., Sherburne, N. Y. 1876
Lynch, John, Columbia, S. C. 1879
Lynch, John S., Baltimore, Md. 1876
Lynde, W. C., Buffalo, N. Y. 1884
Lyon, A. W., Bradford, Conn. 1884
Lyon, Thomas, Williamsport, Pa. 1872
Lyster, Henry F., Detroit, Mich. 1881
Lytle, Geo. E., Monongahela City, Pa. 1883
Lyttle, H. G., New York, N. Y. 1882

Mabon, Thos., Allegheny, Pa. 1873
MacCoy, A. W., Philadelphia, Pa. 1884
MacGill, C. G. W., Catonsville, Md. 1884
Mackall, Louis, Washington, D. C. 1884
Mackenzie, J. N., Baltimore, Md. 1884
Mackie, J. H., New Bedford, Mass. 1881
Maclean, Donald, Ann Arbor, Mich. 1875
MacQuigg, Wm., Lyons, Iowa. 1882
Mackres, H. O., Corry, Pa. 1883
Madden, W. B., Johnstown, Pa. 1883
Magoffin, John, St. Louis, Mo. 1854
Magruder, David L., Ft. Leavenworth, Kan. 1873
Magruder, G. L., Washington, D. C. 1880
Mains, John F., North Rose, N. Y. 1884
Mann, Chas., Nicholasville, Ky. 1873
Mansfelde, A. S. von, Ashland, Neb. 1884
Manson, O. F., Richmond, Va. 1881
Marcellus, T. M., Sleepy Eye, Minn. 1882
March, Henry, Albany, N. Y. 1880
Marchand, J. I., Irwin, Pa. 1883
Marcy, Alex., Riverton, N. J. 1884
Marcy, Henry O., Boston, Mass. 1876
Markel, J. F., Mifflin, Ohio. 1883
Markham, H. C., Independence, Ia. 1882
Markle, John E., Winchester, Ind. 1878
Marks, Solon, Milwaukee, Wis. 1877
Marmion, W. V., Washington, D. C. 1880
Marsh, F. L., Mt. Pleasant, Pa. 1881
Marsh, J. T., Liberty, Mo. 1877
Marshall, Hugh, Monmouth, Ill. 1883
Marshall, Jacob A., Minersk, Ind. 1883
Marshall, John S., Chicago, Ill. 1882
Marshall, N. S., Olney, Ill. 1878
Marshall, Wm., Milford, Del. 1876
Marston, D. E., Monmouth, Me. 1884
Martin, C. W., Greenville, Mich. 1883
Martin, J. D., Savannah, Ga. 1880
Martin, R. W., Chatham, Va. 1881
Martin, Sam'l M., Greenfield, Ind. 1878
Mason, C. R., Hartford City, Ind. 1882
Mason, Darius, Milwaukee, Wis. 1876
Mason, John E., Manchester, N. H. 1884
Mason, Lewis D., Brooklyn, N. Y. 1870
Massey, Isaac, West Chester, Pa. 1883
Mathes, G. L., Cincinnati, O. 1882
Mathews, W., Washington, D. C. 1884
Mathewson, C. B., Providence, R. I. 1881
Matson, Chas. M., Brookville, Pa. 1878
Matson, W. F., Brookville, Pa. 1883
Matthews, John P., Carlinsville, Ill. 1877
Mattingley, C. P., Bardstown, Ky. 1882
Maughs, G. M. B., St. Louis, Mo. 1880
Maxwell, T. J., Biggsville, Ill. 1876
Maynard, H. H., Tipton, Iowa. 1880
Mayo, W. W., Rochester, Minn. 1882
Mays, T. J., Upper Lehigh, Pa. 1876
McAlmont, J. J., Little Rock, Ark. 1883
McArdle, T. E., Washington, D. C. 1884
McCann, James, Pittsburg, Pa. 1870
McCarthy, J. F., Valparaiso, Ind. 1873
McCaw, J. B., Richmond, Va. 1880
McCleary, J. D., Indianola, Iowa. 1878
McClelland, Cochran, Philadelphia. 1882
McCluer, Benj., Dubuque, Iowa. 1878
McClure, A. W., Mt. Pleasant, Iowa. 1882
McClure, T. G., Dowds, Iowa. 1884
McClurg, J. R., West Chester, Pa. 1876
McColl, Hugh, Lapeer, Mich. 1874
McComb, S. F., St. Petersburg, Pa. 1883
McConaughy, Robert, Mt. Pleasant, Pa. 1880
McConnell, H. S., New Brighton, Pa. 1882
McConnell, H. S., New Brighton, Pa. 1884
McConnelly, F. C., Vermillion, Ohio. 1877
McCormack, J. N., Bowling Green, Ky. 1884
McCormick, Cyrus, Berneyville, Va. 1881
McCormick, S. C., Duluth, Minn. 1879
McCormick, W. H., Cumberland, Md. 1884
McCowan, Jennie, Davenport, Iowa. 1882
McCoy, John, Kansas City, Mo. 1882
McCulloch, T. C., Oil City, Pa. 1883
McCurdy, John, Youngstown, O. 1883
McCurdy, S. L., Dennison, O. 1883
McDermith, S. T., Cowden, Ill. 1881
McDill, D., Burlington, Iowa. 1882
McDonald, G., Union, W. Va. 1881
McDonald, O. P., Keokuk, Iowa. 1882
McDonough, H. H., Vanceville, Pa. 1883
McDowell, J. W., Des Moines, Iowa. 1882
McEbright, Thomas, Akron, Ohio 1867
McElroy, Jas., Hickory, Pa. 1883
McElwee, Sam'l, Newcastle, O. 1883
McEwan, S. W., Alexander, Minn. 1883
McEwen, R. C., Saratoga Springs, N. Y. 1880
McFarland, S. F., Oxford, N. Y. 1872
McFeete, Thos., Marion, Ind. 1882
McGavoch, F. G., McGavoch, Ark. 1883
McGaughey, J. B., Winona, Minn. 1872
McGaughey, T. C., Hoopestown, Ill. 1882
McGill, J. D., Jersey City, N. J. 1872
McGlanahan, J. P., Alexis, Ill. 1882
McGlumphy, S. B., Yankton, D. T. 1882
McGowan, Wm. E., Ligonier, Pa. 1884
McGraw, Theodore A., Detroit, Mich. 1874
McGuire, F., Blue Earth City, Minn. 1882
McGuire, Hunter, Richmond, Va. 1872
McGuire, Wm. P., Winchester, Va. 1881
McHatton, H., Macon, Ga. 1884
McHench, W. J., Brighton, Mich. 1882
McIlvaine, T. M., Peoria, Ill. 1882
McIntire, W., Delaware, O. 1883
McIntyre, J. H., Richmond, Ind. 1873
McKay, Read J., Wilmington, Del. 1880
McKean, W., Dundee, Ohio. 1883
McKim, V. I., Lewistown, Pa. 1884
McKeller, A. R., Greenspring, O. 1883
McKelvy, W. H., Pittsburg, Pa. 1881
McKenzie, H. M., Elwood, Iowa. 1884
McKenzie, W. R., Chester, Ill. 1884
McKey, D. I., Baltimore, Md. 1884
McKie, T. J., Woodlawn, S. C. 1883
McKinnon, M. J., York, Pa. 1883
McLaughlin, A. C., Tremont City, Ohio. 1872
McLaughlin, Jas. W., Austin, Texas. 1884
McLean, D. A., Stanton, Mich. 1883
McLean, John, Pullman, Ill. 1876
McLean, J. W., Fayette, Iowa. 1883
McLean, LeRoy, Troy, N. Y. 1870
McLeay, Donald, Prairieville, Mich. 1883
McLeod, S. B. W., New York, N. Y. 1872
McMahan, S. M., Rushville, Ind. 1883
McMahan, W. R., Huntingburg, Ind. 1875
McMahan, W. R., Mankato, Minn.
McMann, W. W., Gardner, Ill. 1874
McMillan, John W., Mt. Vernon, O. 1883
McMurray, J. S., Frankfort, Ind. 1884
McMurtry, L. S., Danville, Ky. 1882
McNary, Hugh F., Princeton, Ky. 1875
McNary, W. H., Martinsville, Ill. 1878
McNeil, Geo. W., Pittsburg, Pa. 1882
McNutt, W. F., San Francisco, Cal. 1883
McQuesten, E. F., Nashua, N. H. 1881
McSherry, Richard, Baltimore, Md. 1876
McVay, J. D., Lake City, Iowa. 1884
McVey, Richard E., Waverly, Ill. 1864
McWilliams, S. A., Chicago, Ill. 1877
Meachem, John G., Racine, Wis. 1874
Meacher, W., Portage City, Wis. 1877
Mears, J. Ewing, Philadelphia, Pa. 1870
Melugin, F. E., Thompson, Ill. 1883
Mendenhall, E. T., New Castle, Ind. 1883
Mendenhall, Isaac, New Castle, Ind. 1882
Mendenhall, W. S., Winfield, Kan. 1883
Menzie, R. J., Caledonia, N. Y. 1878
Mercer, Alfred, Syracuse, N. Y. 1878
Mercer, S. D., Omaha, Neb. 1883
Mercer, W. M., Pittsfield, Mass. 1884

Meredith, Marion, Vinton, Iowa. 1877
Merriam, N. H., Marlboro, N. H. 1884
Meyer, L. G., Pardoe, Pa. 1883
Michaux, Jacob, Michaux Ferry, Va. 1881
Miles, J. D., Schuyler, Neb. 1882
Millard, P. H., Stillwater, Minn. 1881
Miller, A. C., Cleveland, Ohio. 1877
Miller, A. J., Paris, Ill. 1882
Miller, A. M., Bird-in-Hand, Pa. 1880
Miller, Chas. B., Lawrenceburg, Ind. 1875
Miller, D. P., Huntingdon, Pa. 1872
Miller, E. C., Rockwell, Iowa. 1882
Miller, E. H., Liberty, Mo. 1878
Miller, E. P., Fitchburg, Mass. 1884
Miller, Ernest P., Fitchburg, Mass. 1884
Miller, H. G., Millboro Depot, Va. 1881
Miller, J., Kansas City, Mo. 1880
Miller, J., Mt. Pleasant, Mich. 1880
Miller, John, Andover, Mass. 1874
Miller, J. L., Sheffield, Mass. 1884
Miller, J. P., Buckhannon, W. Va. 1880
Miller, O. L., Allegheny, Pa. 1877
Miller, T. W., Chicago, Ill. 1877
Miller, V. G., Mapleton, Kan. 1884
Milligan, F. H., Wabashaw, Minn. 1878
Milligan, M. M., Las Vegas, N. M. 1883
Millikin, C. W., Akron, O. 1883
Millikin, Dan'l, Hamilton, O. 1882
Mills, Charles S., Richmond, Va. 1852
Mills, H. R., Port Huron, Mich. 1874
Milner, R. H., Chester, Pa. 1884
Miner, D. W., Ware, Mass. 1878
Miner, Julius F., Buffalo, N. Y. 1864
Minges, Geo., Dubuque, Iowa. 1883
Minich, A. K., Philadelphia, Pa. 1884
Minni, J. P., New York, N. Y. 1883
Miranda, R. L., New York, N. Y. 1883
Miser, T. B., Mt. Vernon, Ill. 1883
Mitchell, A. R., Lincoln, Neb. 1882
Mitchell, John W., Knoxville, Ia. 1884
Mitchell, R. W., Memphis, Tenn. 1879
Mitchell, S. Weir, Philadelphia, Pa. 1880
Moffet, T. T., Littleton, N. H. 1883
Moffett, G. B., Parkersburg, W. Va. 1883
Moffett, Jas. B., Minneapolis, Minn. 1882
Moffett, John, Rushville, Ind. 1877
Monette, Geo. N., New Orleans, La. 1884
Montgomery, Geo., Newburyport, Mass. 1884
Montgomery, H. F., Wakamsee, Ind. 1883
Montgomery, Harvey F., Rochester, N. Y. 1878
Montgomery, H. T., Wakarusa, Ind. 1878
Montgomery, John, Chambersburg, Pa. 1880
Montgomery, Liston H., Chicago, Ill. 1882
Moody, Geo. O., Titusville, Pa. 1878
Moody, M. M., Chatham Centre, O. 1883
Moon, O. W., Lockport, Ill. 1874
Moore, Edw. M., Rochester, N. Y. 1849
Moore, Jas. E., Minneapolis, Minn. 1883
Moore, J. H., Spring Hill, Kan. 1884
Moore, John S., St. Louis, Mo. 1884
Moore, Jonas Patrick, Meridian, Miss. 1869
Moore, J. W., Cohoes, N. Y. 1880
Moore, Jos. W., Albany, N. Y. 1884
Moore, Perry G., Rich Valley, Ind. 1883
Moore, R. C., Omaha, Neb. 1882
Moore, R. E., Wytheville, Va. 1881
Moore, T. J., Richmond, Va. 1881
Moore, Wm., New Lisbon, O. 1878
Moore, W. J., Norfolk, Va. 1852
Morehouse, W. D., Plymouth, Wis. 1882
Morgan, E. C., Washington, D. C. 1881
Morgan, Jas. E., Washington, D. C. 1873
Morgan, J. M., Spokane Falls, Washington Ter. 1884
Morris, J. Cheston, Philadelphia, Pa. 1881
Morris, J. E., Liberty, Ind. 1884
Morris, John, Baltimore, Md. 1883
Morris, Jonathan, Ironton, O. 1881
Morris, Theo. F., Jersey City, N. J. 1882
Morrison, J. P., Traer, Ia. 1881
Morrison, M. P., Monongahela, Pa. 1877
Morrison, S. J., Little Rock, Ark. 1882
Morse, C. W., Dowagiac, Mich. 1880
Mortland, J. C., Edgerton, O. 1875
Morton, Thomas George, Philadelphia, Pa. 1872
Moser, P. S., Boonesboro, Ia. 1878
Moses, Gratz A., St. Louis, Mo. 1884
Mosgrove, Jas. M., Urbana, O. 1884
Mosgrove, S. M., Urbana, O. 1881
Mossman, B. E., Greenville, Pa. 1880
Mott, Alex. B., New York, N. Y. 1880
Mottram, C. V., Lawrence, Kan. 1874
Mounts, Jas. L. Morrow, O. 1884
Mowry, Robert B., Allegheny City, Pa. 1880
Mudd, H. H., St. Louis, Mo. 1877
Mullen, Alexander J., St. Louis, Mo. 1877
Munde, P. F., New York, N. Y. 1884
Munford, S. E., Princeton, Ind. 1878
Munson, Jas. D., Pontiac, Mich. 1883
Murdoch, F. H., Bradford, Pa. 1883
Murdoch, James B., Pittsburg, Pa. 1882
Murdoch, T. F., Baltimore, Md. 1852
Murfree, J. B., Murfreesboro', Tenn. 1874
Murphy, Edw., Evansville, Ind. 1884
Murphy, Edw., New Harmony, Ind. 1878
Murphy, Garrett, Garden City, Minn. 1864
Murphy, Jas. A., Wilkesbarre, Pa. 1883
Murphy, John A., Cincinnati, Ohio. 1884
Murphy, John H., St. Paul, Minn. 1883
Murphy, P. J., Washington, D. C. 1883
Murphy, Reuben, Roann, Ind. 1883
Murray, Jabez N., Minneapolis, Minn. 1882
Murray, L. S., Medina, Ohio. 1884
Murray, Robert D., Memphis, Tenn. 1879
Murray, R. N., Flint, Mich. 1880
Murrell, T. E., Little Rock, Ark. 1883
Muscroft, C. S., Cincinnati, Ohio. 1883
Musser, F. M., Lancaster, Pa. 1882
Musser, J. Henry, Lampeter, Pa. 1877
Myers, B., Ashland, O. 1884
Myers, C. F. W., Paterson, N. J. 1884
Myers, Henry K., Lykens, Pa. 1884
Myers, Herschel S., Ft. Wayne, Ind. 1883
Myers, Isaac A., Shelby, O. 1878
Myers, W. H., Ft. Wayne, Ind. 1878
Mynter, H., Buffalo, N. Y. 1878
Nance, Hiram, Kewanee, Ill. 1880
Nance, Hiram I., Creston, Ia. 1882
Nancrede, Chas. B., Philadelphia, Pa. 1878
Nardyz, M. L., Philadelphia, Pa. 1883
Nash, Alfred, Joliet, Ill. 1874
Nash, Chas. E., Helena, Ark. 1849
Nash, H. M., Norfolk, Va. 1883
Neal, Thomas L., Dayton, Ohio. 1884
Nebinger, Andrew, Philadelphia, Pa. 1884
Neely, S. F., Leavenworth, Kan. 1869
Neff, John, Baltimore, Md. 1880
Neftel, Wm. B., New York, N. Y. 1884
Nelson, Daniel, T., Chicago, Ill. 1883
Nelson, J. C., Cortland, N. Y. 1882
Nelson, Samuel N., Cambridge, Mass. 1881
Nesbitt, Geo. W., Sycamore, Ill. 1881
Newcomer, F. S., Indianapolis, Ind. 1878
Newcomer, J. W., Petersburg, Ill. 1852
Newcomet, H. W., Philadelphia, Pa. 1882
Newman, H. P., Chicago, Ill. 1881
Newman, Robert, New York, N. Y. 1873
Newton, D. N., Towanda, Pa. 1884
Nichell, Henry, Buffalo, N. Y. 1881
Nicholls, W. H., Rockford, Iowa. 1876
Nichols, Alva W., Greenville, Mich. 1883
Nichols, C. H., Bloomingdale, N. Y. 1858
Nicoll, H. D., New York, N. Y. 1883
Nicolson, W. P., Atlanta, Ga. 1881
Nivison, Nelson, Burdett, N. Y. 1880
Noble, C. M., McLean, Ill. 1882
Noel, A., Bonneauville, Pa. 1884
Norman, L. W., Millerstown, O. 1883
Norred, C. H., Lincoln, Ill. 1882
Norred, Elizabeth H., Lincoln, Ill. 1883
Norris, A. L., Cambridgeport, Mass. 1876
Norris, W. H., Baltimore, Md. 1884
North, Alfred, Waterbury, Conn. 1866
North, John, Keokuk, Iowa. 1877
North, John D., Jackson, Mich. 1874
North, W. H. H., Columbus, Ohio. 1883
Norton, O. D., Cincinnati, Ohio. 1855
Norton, O. D., Jr., Cincinnati, Ohio. 1883
Nott, Thos. H., Golid, Tex. 1884
Noxon, D. C., Walden, N. Y. 1884
Noyes, A. A., Monticello, Minn. 1874
Noyes, Henry D., New York, N. Y. 1864
Noyes, Hiram J., Meigsville, Ohio. 1876
Noyes, Jas. F., Detroit, Mich. 1873
Nunn, R. J., Savannah, Ga. 1876
Nutt, Geo. D., Williamsport, Pa. 1884
Nutting, D. H., Randolph, Vt. 1880

Oakley, F. M., Ypsilanti, Mich. 1874
Oatley, Asa C., Zanesville, Ohio. 1883
O'Brien, J. N., Milwaukee, Wis. 1877
O'Connor, Matthew C., New Haven, Conn. 1884
Octerlony, John A., Louisville, Ky. 1873
O'Daniel, W., Bullard's Station, Ga. 1879
Odell, Jos. W., Greenland, N. H. 1884
O'Ferrall, R. M., La Fayette, Ind. 1884
Ogden, William M., Boston, Mass. 1884
O'Hagan, C. J., Greenville, N. C. 1872
O'Hara, Michael, Philadelphia, Pa. 1878
Ohr, C. H., Cumberland, Md. 1868
O'Leary, Chas., Providence, R. I. 1880
Oliver, J. H., Indianapolis, Ind. 1882
Oliver, W. F., Longton, Kan. 1882
O'Neal, J. W. C., Gettysburg, Pa. 1875
O'Neal, Laughlin, Somerset, Ind. 1883
O'Neal, Owen, Somerset, Ind. 1884
Opie, Thos., Baltimore, Md. 1884
Oppenheimer, H. S., New York, N.Y. 1880
Orcutt, A. M., Hardwick, Mass. 1884
O'Reilly, P. S., U. S. Army. 1873
Orlady, H., Petersburg, Pa. 1882
Orme, H. S., Los Angeles, Cal. 1882
Orr, J. P., Rushville, Ind. 1879
Orth, H. L., Harrisburg, Pa. 1877
Orton, J. G., Binghamton, N. Y. 1883
Osborn, A. L., Norwalk, Ohio. 1883
Osborn, M. C., Delmar, Ia. 1884
Osborn, W., Waco, Tex. 1884
Osborne, Harris B., Kalamazoo, Mich. 1876
O'Sullivan, R. J., New York, N. Y. 1878
Otillie, Chas., La Crosse, Wis. 1884
Otis, F. N., New York, N. Y. 1880
Outten, W. B., So. St. Louis, Mo. 1873
Overholt, D. W., Columbus Junction, Iowa. 1876
Owen, F. W., Detroit, Mich. 1883
Owen, Frank K., Ypsilanti, Mich. 1876
Owen, Fred. Wooster, Morristown, N. J. 1878
Owen, O. W., Detroit, Mich. 1883
Owens, J. A., Pine Bluff, Ark. 1873
Owens, John E., Chicago, Ill. 1877

Pace, J. M., Dallas, Tex. 1884
Packard, John H., Philadelphia, Pa. 1878
Packer, D. M., Boston, Mass. 1884

Paddock, F. K., Pittsfield, Mass. 1880
Page, H. R., Des Moines, Iowa. 1882
Page, R. C. M., New York, N. Y. 1881
Palmer, A. B., Ann Arbor, Mich. 1876
Palmer, Charles N., Lockport, N. Y. 1878
Palmer, E. A., Hartford, Mich. 1883
Palmer, Gideon S., Washington, D. C. 1854
Palmer, Henry, Janesville, Wis. 1876
Pamphilon, Henry, Stafford, N. Y. 1878
Pancoast, D. P., Camden, N. J. 1883
Pancoast, W. H., Philadelphia, Pa. 1876
Paoli, Gerhardt C., Chicago, Ill. 1863
Parcels, W. H., Lewistown, Pa. 1884
Park, John W., Williamstown, Pa. 1884
Park, Roswell, Buffalo, N. Y. 1877
Park, R. W., Waco, Texas. 1884
Park, W. H., Tyler, Texas. 1875
Park, W. M., Indianola, Iowa. 1880
Parker, Chas. C., Fayette, Iowa. 1884
Parker, D., Blissfield, Mich. 1883
Parker, M. G., Lowell, Mass., 1877
Parkes, C. T., Chicago, Ill. 1882
Parkinson, James H., Sacramento, Cal. 1884
Patchin, Robt. A., Des Moines, Ia. 1883
Parmele, G. L., Hartford, Conn. 1881
Parr, Thos. S., Indianola, Iowa. 1879
Parrish, Joseph, Burlington, N. J. 1847
Parsons, C. H., Rushville, Ind. 1884
Parsons, Israel, Marcellus, N. Y. 1874
Parsons, John, Kingsbridge, N. Y. 1880
Parsons, John W., Portsmouth, N. H. 1870
Parvin, Theophilus, Philadelphia, Pa. 1867
Patch, Franklin Fletcher, Boston, Mass. 1865
Pattee, Asa F., Boston, Mass. 1884
Patten, F. H., West Newton, Pa. 1884
Patterson, A. V., Mansfield, Ohio. 1880
Patterson, A. W., Indianapolis, Ind. 1875
Patterson, De Witt C., Washington, D. C. 1881
Patterson, Duncan N., Mangum, N. C. 1881
Patterson, J. A., Zollarsville, Pa. 1884
Patterson, Philo D., Charlotte, Mich. 1878
Patterson, R. J., Batavia, Ill. 1876
Pattison, H. E., Winamac, Ind. 1883
Patton, Jos. L., Whitefield, N. H. 1884
Paul, J. M., Belvidere, N. J. 1880
Paulding, O. P., Arrowsmith, Ill. 1882
Payne, Alban S., Atlanta, Ga. 1879
Payne, Frank Howard, Berkley, Cal. 1884
Payton, Daniel, Payton Mineral Sp'gs, Oregon. 1871
Peables, A. M., Auburn, Me. 1884
Peabody, James H., Omaha, Neb. 1870
Pearce, H. C., Urbana, Ohio. 1878
Pearse, S. H., Mt. Vernon, Ind. 1875
Pearson, Chas. D., Indianapolis, Ind. 1883
Pearson, F. W., Baltimore, Md. 1881
Peavler, H. J., Mt. Vernon, Ill. 1884
Peck, B. S., Galva, Ill. 1877
Peck, C. W., Brandon, Vt. 1880
Peck, Geo., U. S. N., Washington, D. C. 1884
Peck, G. S., Youngstown, Ohio. 1882
Peck, W. F., Davenport, Iowa. 1865
Peebles, H. P., New Castle, Pa. 1876
Pennepacker, H., Harford, Pa. 1876
Penniman, Alex. B., Oberlin, Ohio. 1877
Pennington, Joel, Milton, Ind. 1850
Pepper, Wm., Philadelphia, Pa. 1872
Percival, Charles F., Baltimore, Md. 1881
Perdue, W. R., Unionville, Pa. 1880
Perin, G., U. S. A., Ft. Snelling, Minn. 1882
Perkins, Geo., Somerset, Ky. 1875
Perkins, Jabez, Owassa, Mich. 1882
Perkins, Jos. F., Baltimore, Md. 1883
Perry, J. G., New York, N. Y. 1872
Perry, Jno. W., Alexandria, Ind. 1883
Peter, Armisted, Washington, D. C. 1884
Peters, Harrison, Blissfield, Mich. 1883
Phelps, R. H., Littleton, Mass. 1880
Phelps, Wm. C., Buffalo, N. Y. 1878
Philips, W. H., Kenton, O. 1882
Phillips, Edwin, Minneapolis, Minn. 1882
Phillips, Ellis, New Haven, Pa. 1876
Phillips, E. L., Galesburg, Ill. 1874
Phillips, H. H., Vandalia, Mich. 1883
Phillips, John, Stevens Point, Wis. 1884
Phillips, Thos. H., Canton, O. 1883
Phillips, W. S., Belle Centre, O. 1883
Pickard, P., Mt. Vernon, O. 1883
Pickett, Manhattan, Corry, Pa. 1880
Pierson, Wm., Orange, N. J. 1876
Pillow, P. H., Butler, Pa. 1884
Pine, O. S., Milbank, D. T. 1882
Pinkerton, Thos. H., Oakland, Cal. 1871
Pinkham, G. E., Lowell, Mass. 1880
Pinkham, J. W., Mt. Clair, N. J. 1880
Pinney, Chas. H., Derby, Conn. 1875
Pipes, J. H., Wheeling, W. Va. 1882
Pitner, Thos. J., Jacksonville, Ill. 1872
Pittman, Newson J., Tarboro, N. C. 1849
Pixley, Chelius S., Elkhart, Ind. 1883
Pixley, Sumner, Peninsula, O. 1883
Platt, Gideon L., Waterbury, Conn. 1848
Plummer, Samuel C., Rock Island, Ill. 1873
Pocock, Eli D., Shreve, Ohio. 1884
Pocock, J. N., Perrysville, O. 1883
Pollak, S., St. Louis, Mo. 1882
Pollard, Geo. Wm., Aylett's, Va. 1881
Pollock, Alex. McCandless, Pittsburg, Pa. 1850
Pollock, W. L., Heyworth, Ill. 1882
Pomerene, P. P., Berlin, Ohio. 1878
Pomeroy, C. G., Newark, N. Y. 1878
Poore, C. T., New York, N. Y. 1882
Pope, John H., Marshall, Texas. 1875
Porter, A. G., Lebanon, Ind. 1877
Porter, D. N., Eminence, Ky. 1875
Porter, G. L., Bridgeport, Conn. 1880
Porter, Henry N., New York Mills, N. Y. 1876
Porter, Miles F., Ft. Wayne, Ind. 1881
Porter, W., St. Louis, Mo. 1882
Porter, Winslow B., Walpole, N. H. 1884
Porter, W. W., Syracuse, N. Y. 1876
Portman, W. C., Canton, O. 1883
Post, Alfred C., New York, N. Y. 1848
Potter, Albert, Chepachet, R. I. 1881
Potter, Fred., Ensign, U. S. N., Portsmouth, N. H. 1869
Potter, W. W., Buffalo, N. Y. 1878
Powell, Alfred H., Baltimore, Md. 1881
Powell, H. H., Cleveland, Ohio. 1883
Powell, T. O., Milledgeville, Ga. 1879
Powell, T. S., Atlanta, Ga. 1876
Powell, W. S., Defiance, Ohio. 1882
Pratt, Foster, Kalamazoo, Mich. 1874
Pratt, Willis H., Stillwater, Minn. 1882
Prentice, G. M., Fairfield, Neb. 1883
Prentiss, D. Webster, Washington, D. C. 1880
Preston, A. G., Greencastle, Ind. 1882
Preston, B. I., Rochester, N. Y. 1883
Preston, Geo. M., Lynchburg, Va. 1881
Prewitt, R. C., Osceola, Ark. 1883
Prewitt, T. F., St. Louis, Mo. 1882
Pricard, G. H., Topeka, Kan. 1883
Price, A. D., Harrodsburg, Ky. 1884
Price, E. W., Kent, Ohio. 1883
Price, J. L. Bergen, Ky. 1884
Prince, A. E., Jacksonville, Ill. 1884
Prince, David, Jacksonville, Ill. 1882
Pritchett, John A., Haynesville, Ala. 1879
Proctor, Geo. M., Shalersville, Ohio. 1878
Prochl, L. J., Akron, O. 1883
Province, Wm. M., Providence, Ind. 1883
Pugh, John W., Oaktown, Ind. 1875
Purdy, A, S., New York, N. Y. 1881
Purple, S. S., New York, N. Y. 1884
Pursell, Isaac, Danville, Pa. 1876
Purviance, George, Pittsburg, Pa. 1881
Purviance, S. W., Crawfordsville, Ind. 1875
Putnam, J. M., Chelsea, Mass. 1880

Quimby, Isaac N., Jersey City, N. J. 1872
Quine, John, Patterson, N. J. 1884

Radcliffe, Samuel J., Washington, D. C. 1868
Rahauser, Geo. G., Pittsburg, Pa. 1878
Rahler, C. A., Harrisburg, Pa. 1884
Raines, Thomas, Atlanta, Ga. 1880
Ramsey, R. W., St. Thomas, Pa. 1880
Randell, G. H., Chicago, Ill. 1883
Rankin, D. N., Pittsburg, Pa. 1878
Rankin, T. W., Kirkesville, Ohio. 1883
Ranney, Geo. E., Lansing, Mich. 1874
Ransohoff, Jos., Cincinnati, Ohio. 1882
Ransom, H. B., Burlington, Iowa. 1877
Ransom, J. J., Burlington, Iowa. 1881
Ransom, S. W., Dodge Centre, Minn. 1882
Ransom, W. L., Roscoe, Ill. 1882
Rauch, John H., Springfield, Ill. 1875
Rawlins, John W., Washington, D. C. 1884
Rawson, Allen, Corning, Ia. 1884
Rawson, C. H., Des Moines, Ia. 1873
Rea, John, New Castle, Ind. 1870
Read, A. N., Norwalk, O. 1855
Read, Henry N., Brooklyn, N. Y. 1881
Read, Ira B., New York, N. Y. 1883
Read, M. S., Chandlerville, Ill. 1873
Reagan, G. L. Berwick, Pa. 1876
Reamy, Thaddeus A., Cincinnati, O. 1867
Reasoner, H. D., New Cumberland, Ind. 1876
Reber, C. T., Shelbyville, Ill. 1877
Reber, W. M., Bloomsburg, Pa. 1884
Redrow, Isaac, Williamsburg, Ohio. 1883
Reece, Madison, Abingdon, Ill. 1874
Reed, A. B., Cedar Rapids, Iowa. 1883
Reed, Andrew B., Cedar Rapids, Ia. 1880
Reed, Boardman, Atlantic City, N. J. 1884
Reed, C. R., Middleport, Ohio. 1883
Reed, J. A. E., Lancaster, Pa. 1884
Reed, J. B., Wheeling, W. Va. 1884
Reed, R. G. S., Stockton, O. 1882
Reed, R. Harvey, Mansfield, Ohio. 1883
Reed, T. J., Massillon, O. 1878
Reed, W. F., Kalida, Ohio. 1883
Reese, A. J., Mobile, Ala. 1884
Reeser, Howard S., Reading, Pa. 1884
Reeve, Jas. T., Appleton, Wis. 1877
Reeve, John C., Dayton, O. 1866
Reeves, James E., Wheeling, W. Va. 1880
Reid, A. M., Clarion, Pa., 1883
Reid, E. M., Baltimore, Md. 1884
Reid, J. K., Conshohocken, Pa. 1884
Remick, Aug., Providence, R. I. 1881
Renner, J. H., La Gro, Ind. 1877
Rennolds, H. T., Baltimore, Md. 1875
Reno, Henry C., Albion, Ill. 1881
Rex, R. G., Portland, Oregon. 1883
Reyburn, Robert, Washington, D. C. 1868
Reynolds, A., Chicago, Ill. 1883
Reynolds, B. H., Manchester, Ioa. 1883
Reynolds, Dudley S., Louisville, Ky. 1872
Reynolds, E. M., Centreville, Iowa. 1884
Reynolds, H. J., Chicago, Ill. 1882
Reynolds, R. C., Pittsford, N. Y. 1878

Reynolds, Thos. N., Detroit, Mich. 1878
Rheinfrank, Jno. H., Perrysburg, O. 1882
Rice, Charles H., Fitchburg, Mass. 1880
Rice, R. C., Smithland, Ia. 1878
Rice, R. H., Fremont, O. 1882
Rice, Spencer M., Des Moines, Iowa. 1884
Richards, Charles H., Georgetown, Del. 1879
Richards, W. M., Joliet, Ill. 1883
Richardson, A. P., Walpole, N. H. 1880
Richardson, C. T., Charleston, W. Va 1884
Richardson, Edward, Louisville, Ky. 1874
Richardson, Joseph G., Philadelphia, Pa. 1867
Richardson, Tobias Gibson, New Orleans, La. 1855
Richardson, Wm. L., Montrose, Pa. 1863
Richey, S. O., Washington, D. C. 1877
Richings, C. H., Rockford, Ill. 1872
Rickards, W. M. L., Philadelphia, Pa. 1874
Ricketts, E. S., Portsmouth, Ohio. 1884
Riddell, S. S., Chippewa Falls, Wis. 1874
Ridenour, Albert W., Massillon, Ohio. 1877
Ridenour, W. T., Toledo, Ohio. 1874
Rigg, J. E., Stoner, Pa. 1883
Riggs, E. S., Allegheny, Pa. 1876
Riggs, J. M., Bryan, Ohio. 1883
Righter, Wash., Columbia, Pa. 1872
Rinearson, Frank B., La Grande, Oregon. 1884
Ring, Wm., Buffalo, N. Y. 1880
Risley, S. D., Philadelphia, Pa. 1880
Ristine, Harley G., Ft. Dodge, Iowa. 1883
Ristine, Henry, Cedar Rapids, Iowa. 1877
Ritchey, John A., Oil City, Pa. 1876
Roach, Paul, Quaker Street, N. Y. 1880
Robb, Wm. H., Amsterdam, N. Y. 1878
Robbins, L. H., Lincoln, Neb. 1882
Roberts, Deering J., Nashville, Tenn. 1875
Roberts, Jas. D., Goldsboro, N. C. 1884
Roberts, John B., Philadelphia, Pa. 1881
Robertson, T. T., Winsboro, S. C. 1884
Robertson, W. S., Muscatine, Iowa. 1873
Robinson, F. C., Uniontown, Pa. 1881
Robinson, J. Q., West Newton, Pa. 1883
Robinson, Rienzi, Danielsonville, Conn. 1876
Robinson, S. E., W. Union, Ia. 1882
Robinson, W. L., Danville, Va. 1881
Robinson, W. S., Taunton, Mass. 1880
Robison, James D., Wooster, Ohio. 1850
Rochester, Thomas F., Buffalo, N. Y. 1860
Rockwell, C. V., Taylorsville, Ill. 1883
Rockwell, P. G., Aiken, S. C. 1880
Rockwell, S. W., Hartford, Conn. 1884
Rodgers, Jno. H., Springfield, Ohio. 1883
Rodman, Chas. S., Waterbury, Conn. 1884
Roe, J. O., Rochester, N. Y. 1880
Rogers, E. A., Laporte, Ind. 1882
Rogers, E. M., Hartford, Wis. 1882
Rogers, H. Raymond, Dunkirk, N. Y. 1868
Rogers, H. S., Grand View, Ioa. 1884
Rogers, Jos. G., Indianapolis, Ind. 1882
Rohe, Geo. H., Baltimore, Md. 1884
Rohr, G. W., Rockford, Ill. 1877
Roland, O., Lancaster, Pa. 1881
Roler, E. O. F., Chicago, Ill. 1877
Rolfe, Benj. F., Staceyville, Iowa. 1882
Roller, L. A., Edmore, Mich. 1883
Roller, W. C., Hollidaysburg, Pa. 1876
Rolph, R. F., Fargo, D. T. 1882
Roman, Samuel T., Conowingo, Md. 1884
Rood, Jos. B. Lemont, Ill. 1876
Rook, Chas. W., Quincy, Ill. 1884
Rooker, Jas. I., Castleton, Ind. 1875
Roome, John S., Calmar, Iowa. 1884
Rooney, A. F., (Mrs.), Quincy, Ill. 1882
Rooney, Michael, Quincy, Ill. 1882
Roosa, D. B. St. John, New York, N.Y. 1880
Rose, Gilbert Lester, Decatur, Mich. 1881
Rose, J. M., Herkimer, N. Y. 1880
Rose, Landon C., La Porte, Ind. 1853
Rosenthal, Isaac M., Fort Wayne, Ind. 1867
Roskoten, Robert, Peoria, Ill. 1874
Ross, Geo., Richmond, Va. 1880
Ross, John D., Williamsburg, Pa. 1854
Ross, Jonathan, Blountville, Ind. 1884
Ross, Jos. P., Chicago, Ill. 1873
Ross, S. M., Altoona, Pa. 1882
Rosser, Jno. C., Brainerd, Minn. 1882
Rotch, T. M., Boston, Mass. 1881
Roundtree, F. M., Kingston, N. C. 1884
Rouse, S. J., York, Pa. 1883
Rowe, G. H. M., Boston, Mass. 1884
Rowe, Mark, Dudley, Ill. 1882
Rowland, A. A., St. Louis, Mo. 1877
Rumbold, T. F., St. Louis, Mo. 1874
Ruschenberger, W. S. W., Phila., Pa. 1850
Rushmore, J. D., Brooklyn, N. Y. 1881
Russ, Eben J., St. Mary's, Pa. 1884
Russell, F. Wm., Winchendon, Mass. 1876
Russell, Ira, Winchendon, Mass. 1884
Russell, John W., Mt. Vernon, Ohio. 1878
Russell, L. J., Heidenhimer, Tex. 1884
Russell, Thos. P., Oshkosh, Wis. 1873
Russell, W. S., Wallingford, Conn. 1882
Rutherford, F. A., Gr'd Rapids, Mich. 1877
Rutledge, S. R., Blairsville, Pa. 1876
Sabal E. T., Jacksonville, Fla. 1875
Sabin, Marden, Centreville, Mich. 1875
Sacket, J. W., Prairieville, Mich. 1883
Saddleson, George H., Manly, N. C. 1881
Sager, Joseph, Celina, O. 1883
Sale, E. Paul, Aberdeen, Miss. 1879
Salisbury, A. H., Minneapolis, Minn. 1882
Samborn, J. A., Plymouth, N. H. 1882
Sanborn, Thos. B., Newport, N. H. 1884
Sanders, Samuel F., Good Hope, Ill. 1875
Sandt, John, Easton, Pa., 1881
Satchwell, S. S., Rocky Point, N. C. 1881
Satterthwaite, T. E., New York, N. Y. 1880
Saunders, D. D., Memphis, Tenn. 1884
Saunders, Wm. E., Sherman, Tex. 1875
Savory, C. A., Lowell, Mass. 1877
Sawyer, E. A., Gardner, Mass. 1884
Sawyer, F. A., Wareham, Mass. 1873
Sawyer, J. W., Providence, R. I. 1882
Sawyers, S. H., Unionville, Iowa. 1873
Sayre, Lewis Albert, New York, N. Y. 1848
Sayre, Louis H., New York, N. Y. 1883
Scarff, J. H., Baltimore, Md. 1884
Scarff, W. D., Bellefontaine, Ohio. 1883
Schaefer, F. C., Chicago, Ill. 1878
Schaeffer, Edw. M., Washington, D.C. 1884
Schauffler, Edw. W., St. Louis, Mo. 1880
Schell, Henry S., Philadelphia, Pa. 1884
Schenck, W. L., Osage City, Kan. 1877
Schermerhorn, B., Sherman, N. Y. 1883
Schlink, F. H., Delphos, Ohio. 1883
Schmid, H. E., White Plains, N. Y. 1880
Schoales, J. D., Philadelphia, Pa. 1882
Schoonover, Warren, New York, N. Y. 1880
Schuppert, M., New Orleans, La. 1884
Schurtz, P., Grand Rapids, Mich. 1883
Schwartz, N. F., Pittsburg, Pa. 1883
Scott, A. E., Bladenburg, Ohio. 1882
Scott, A. J., Loudonville, Ohio. 1881
Scott B. B., Mt. Vernon, Ohio. 1883
Scott, James M., St. Louis, Mo. 1873
Scott, W., Kokomo, Ind. 1883
Scott, W. J., Cleveland, Ohio. 1876
Scott, Xenophon C., Cleveland, Ohio. 1874
Scriber, W., Ogden, Mich. 1883
Seabrook, C. C., Harrisburg, Pa. 1884
Seaman, M. W., Shipman, Ill. 1884
Searle, B. W., Ottumwa, Iowa. 1882
Sears, John H., Waco, Tex. 1881
Seavey, Calvin, Bangor, Me. 1876
Seeley, W. W., Cincinnati, Ohio. 1884
Seem, A. A., Bangor, Pa. 1884
Seem, A. K., Martin's Creek, Pa. 1884
Seiler, Carl, Philadelphia, Pa. 1880
Seiler, Geo., Alma, Wis. 1882
Seiss, R. S., Littlestown, Pa. 1876
Selden, Wm., Norfolk, Va. 1881
Sell, Edw. H. M., New York, N. Y. 1867
Sellman, Wm. A. B., Baltimore, Md. 1880
Semple, G. W., Hampton, Va. 1881
Semple, John, Wilkinsburg, Pa. 1880
Senn, Nicholas, Milwaukee, Wis. 1873
Severance, R. A., Bellevue, Ohio. 1867
Sexton, Marshall, Rushville, Ind. 1874
Seymour, W. P., Troy, N. Y. 1877
Seymour, W. W., Troy, N. Y. 1884
Shackelford, J. A., Carrollton, Miss. 1883
Shackford, C. H., Chelsea, Mass. 1880
Shakespeare, E. O., Philadelphia, Pa. 1884
Sharer, J. P., Little Falls, N. Y. 1880
Sharp, H. J., London, Ohio. 1882
Shattuck, F. C., Boston, Mass. 1884
Shaw, Thomas W., Pittsburg, Pa. 1881
Sheaffer, A. H., Lewistown, Pa. 1881
Shean, Wm. M., Gardner, Kan. 1880
Sheardown, Sam'l B., Stockton, Minn. 1882
Shearer, James Y., Sinking Springs, Pa. 1880
Sheehan, W. F., Rochester, N. Y. 1883
Sheldon, S. B., Five Mile, Ohio. 1883
Shelton, G. A., Shelton, Conn. 1880
Shepard, A. T., Arkansas City, Kan. 1882
Shepherd, George R., Hartford, Conn. 1881
Shepherd, W. W., Hillsboro, Ohio. 1883
Sheridan, J. C., Johnstown, Pa. 1883
Sherman, A. M., Kent, Ohio. 1880
Sherman, B. F., Ogdensburg, N. Y. 1872
Sherman, H. G., Cleveland, Ohio. 1884
Sherrick, J. D., Newton, Kan. 1883
Sherwood, F. G., Rush, N. Y. 1883
Shew, A. M., Middletown, Conn. 1875
Shilling, Geo. W., Sharon, Pa. 1884
Shillito, G. M., Allegheny, Pa. 1879
Shinn, W. R., Wallace, Ill. 1882
Shipman, Alfred, Plattsmouth, Neb. 1883
Shipp, Farinda, Petersburg, Ill. 1883
Shively, Joseph W., Kent, Ohio. 1881
Shoemaker, John V., Philadelphia, Pa. 1878
Shoemaker, T. J., Morganfield, Ky. 1875
Shoemaker, W. P., Bradford, Pa. 1882
Short, R. N., Mechanicsburg, Pa. 1880
Short, W. H., La Grange, Ind. 1883
Shrader, J. C., Iowa City, Iowa. 1878
Shrady, John, New York, N. Y. 1880
Shriver, C., Bethany, W. Va. 1881
Shugart, F. A., Tidioute, Pa. 1884
Shull, Calvin Q., Montpelier, Ind. 1884
Shulse, Wm. H., Lebanon, Ind. 1875
Shurley, Ernest L., Detroit, Mich. 1874
Shurtleff, Geo. A., Stockton, Cal. 1871
Shute, C. B., Malden, Mass. 1883
Sidney, A. W., Fitchburg, Mass. 1881
Sill, H. Newell, Strawberry Pt., Ia. 1882
Silliman, J. E., Erie, Pa. 1884
Silver, D. R., Sidney, Ohio. 1883
Silver, Henry M., New York, N. Y. 1880
Silverthorn, L. L., Charleston, Ill. 1873
Sim, F. L., Memphis, Tenn. 1884
Simmons, Gustavus L., Sacramento, Cal. 1871
Simons, C. J., Chicago, Ill. 1884
Simons, Manning, Charleston, S. C. 1870
Simonton, A. C., Des Moines, Ia. 1884

Simpson, Theo. P., Beaver Falls, Pa. 1884
Simpson, W. C., New Brighton, Pa. 1884
Sinnott, Edwin, Granville, O. 1883
Siveney, R. L., Marion, Ohio. 1883
Skelton, John G., Richmond, Va. 1881
Skinner, D. M., Belleville, N. J. 1880
Skinner, G. R., Cedar Rapids, Iowa. 1877
Skinner, S. A., Hoosack Falls, N. Y. 1883
Skinner, Wm. M., Anamosa, Ia. 1884
Slagle, C. G., Winnebago City, Wis. 1882
Slater, A. S., Watagu, Ill. 1884
Slater, Mrs. Cath. B., Aurora, Ill. 1882
Sloan, A. B., Kansas City, Mo. 1879
Sloan, Jas. G., Monongahela, Pa. 1884
Slocum, Chas. E., Defiance, Ohio. 1875
Small, A. V., Sedalia, Mo. 1874
Small, H. N., Portland, Me. 1884
Small, J. M., Lewiston, Me. 1880
Smart, A. R., Hudson, Mich. 1879
Smart, Chas., Washington, D. C. 1884
Smart, W. N., Grand Haven, Mich. 1882
Smeallie, Jas. A., Canajoharie, N. Y. 1883
Smith, Albert H., Philadelphia, Pa. 1878
Smith, Allen P., Baltimore, Md. 1883
Smith, Andrew H., New York, N. Y. 1876
Smith, Andrew J., Wabash, Ind. 1884
Smith, C. D., Newman, La. 1884
Smith, Chas. E., St. Paul, Minn. 1882
Smith, Charles Gilman, Chicago, Ill. 1864
Smith, C. H., Mason City, Iowa. 1882
Smith, Custer H., Lebanon, Ind. 1883
Smith, D. B., Cleveland, Ohio. 1883
Smith, D. W., Newark, N. J. 1876
Smith, E., Burchard, Neb. 1884
Smith, Eugene, Detroit, Mich. 1873
Smith, E. F., Newark, N. J. 1884
Smith, E. N., Susquehanna Depot, Pa. 1875
Smith, G. M., New York. 1884
Smith, Gouverneur M., New York, N. Y. 1858
Smith, G. W., Hollidaysburg, Pa. 1884
Smith, Hamilton E., Detroit, Mich. 1874
Smith, Henry H., Philadelphia, Pa. 1876
Smith, Hiram, Augusta, Ga. 1879
Smith, J. H., Warren, Ohio. 1883
Smith, James M., Tyrone, Pa. 1881
Smith, J. Lewis, New York, N. Y. 1880
Smith, James T., Baltimore, Md. 1884
Smith, Joseph R., U. S. A., San Antonio, Texas. 1874
Smith, Joseph T., Canandaigua, N. Y. 1880
Smith, J. W., Charles City, Iowa. 1873
Smith, J. W., La Grange, Texas. 1884
Smith, J. W., Lorain, Ohio. 1883
Smith, Lee, Bloomington, Ill. 1882
Smith, N. S., Pierre, D. T. 1882
Smith, R. H., Craig, Mo. 1882
Smith, S. Hanbury, New York, N. Y. 1850
Smith, Stephen, New York, N. Y. 1884
Smith, Thos. C., Washington, D. C. 1884
Smith, T. J., Bridgeton, N. J. 1880
Smith, W., Van Wert, Ohio. 1877
Smolt, C. F., Nickerson, Kan. 1883
Smouse, D. W., Des Moines, Iowa. 1883
Smythe, A. G., Baldwin, Miss. 1874
Smythe, Gonzalva C., Green Castle, Ind. 1879
Snively, Andrew J., Hanover, Pa. 1884
Snively, I. N., Waynesboro, Pa. 1876
Snively, W., Pittsburg, Pa. 1880
Snodgrass, H. L., Buffalo, Pa. 1882
Snodgrass, J. H., Pittsburg, Pa. 1872
Snook, J. M., Kalamazoo, Mich. 1880
Snow, A. P., Winthrop, Me. 1876
Snow, Edw. S., Dearbornville, Mich. 1875
Snow, N. L., Albany, N. Y. 1880
Snowden, John W., Hammonton, N. J. 1872
Snowden, S. Gustine, Franklin, Pa. 1870
Southard, Lott, Newark, N. J. 1876
Southworth, C. T., Monroe, Mich. 1883
Sowers, A. H., Hastings, Neb. 1884
Spalding, S. C., Shenandoah, Pa. 1880
Spangler, B. F., York, Pa. 1884
Spann, B, F., Anderson, Ind. 1880
Spaulding, C. M., Chemung, N. Y. 1884
Spaulding, F. A., Detroit, Mich. 1884
Spencer, Clark E., Ft. Gratiot, Mich. 1874
Spencer, W. C., U. S. A. 1882
Spilman, S. A., Ottumwa, Iowa. 1882
Spinning, P. T., Springfield, O. 1882
Spitler, Adam, Carthage, Ill. 1882
Sproul, J. S., Warren, Ind. 1882
Squibb, Edward R., Brooklyn, N. Y. 1882
Stackpole, P. A., Dover, N. H. 1880
Stahley, G. D., Harrisburg, Pa. 1880
Stair, J. B., South Green, Wis. 1882
Stair, T. F., Mazo Manie, Wis, 1882
Stalnaker, J. W., Austin, Texas. 1875
Stamm, M., Fremont, O. 1883
Stanley, E., Sandusky, O. 1883
Stansbury, E., Appleton, Wis. 1882
Stanton, Byron, Cincinnati, O. 1882
Stanton, J. O., Washington, D. C. 1881
Staples, Franklin, Winona, Minn. 1871
Staples, Geo. M., Dubuque, Iowa. 1872
Starr, G. L., Hudson, O. 1883
Staton, L. L., Tarboro, N. C. 1880
Stayer, A. S., Roaring Springs, Pa. 1883
Stedman, W. G., Southington, Conn. 1880
Steel, David, Petersburg, Va. 1881
Steele, A. J., St. Louis, Mo. 1867
Steele, D. A. K., Chicago, Ill. 1877
Steele, Geo. M., Oshkosh, Wis. 1877
Steele, H., Peoria, Ill. 1882
Steele, H. K., Denver, Col. 1883
Steen, A. H., Cottage Grove, Wis. 1882
Stein, Alex. W., New York, N. Y. 1870
Steiner, Lewis H., Frederick, Md. 1850
Steinmetz, E. G., Hokendauqua, Pa. 1878
Steinriede, Joseph J., Yazoo City, Miss. 1870
Stellwagen, Thos. C., Media, Pa. 1884
Stemen, C. B., Ft. Wayne, Ind. 1877
Stephens, A. H., National Military Home, Ohio. 1884
Stephenson, Robert, Adrian, Mich. 1876
Sternberg, Geo. M., U. S. A., Washington, D. C. 1884
Stevart, Jas. A., Baltimore, Md. 1884
Steven, John A., Hartford, Conn. 1881
Stevens, Charles W., St. Louis, Mo. 1881
Stevens, E. H., Cambridge, Mass. 1884
Stevens, Geo. T., New York, N. Y. 1881
Stevens, Merari B., Defiance, Ohio. 1875
Stevens, Thaddeus M., Indianapolis, Ind. 1867
Stevens, Wm., New York, N. Y. 1880
Stevenson, Jas. M., Pittsburg, Pa. 1882
Stevenson, Sarah Hackett, Chicago, Ill. 1884
Stewart, D. A., Winona, Minn. 1882
Stewart, F. E., Philadelphia, Pa. 1882
Stewart, Jonas, Anderson, Ind. 1884
Stewart, J. L., Erie, Pa. 1876
Stewart, J. S., Anderson, Ind. 1882
Stewart, Richard B., Warren, Pa. 1884
Stewart, Thos. H., Church Hill, Ohio. 1876
Stewart, W. G., Newville, Pa. 1883
Stewart, Wm. S., Philadelphia, Pa. 1876
Stick, Wesley G., Glenville, Pa. 1884
Stiles, Chas. L., Owego, N. Y. 1880
Stiles, George M., Conshohocken, Pa. 1876
Stillé, Alfred, Philadelphia, Pa. 1847
Stillman, Charles F., New York, N.Y. 1876
Stilwell, Jos. A., Brownstown, Ind. 1875
Stinchfield, A. W., Eyota, Minn. 1875
Stinson, Mary H., 1876
Stockdell, Hugh, Petersburg, Va. 1884
Stockman, Geo. C., Ft. Atkinson, Wis. 1884
Stockton, E. A., Stockton, Cal. 1876
Stockwell, Cyrus M., Port Huron, Mich. 1856
Stone, Alex. J., St. Paul, Minn. 1881
Stone, Joseph C., Burlington, Iowa. 1881
Stone, J. J., Argyle, Minn. 1877
Stone, M. W., Wahoo, Neb. 1882
Stone, W. G., Vaiden, Miss. 1881
Stone, W. W., Sanders, Neb. 1883
Storch, A. B., Milan, O. 1883
Storer, Horatio R., Newport, R. I. 1878
Stormont, D. W., Topeka, Kan. 1858
Stout, J., Peoria, Ill. 1882
Stover, R. B., Moscow, Tenn. 1881
Straight, A. Miner, Wilcox, Pa. 1883
Straughan, J. W., Parkersburg, Ind. 1882
Strausser, S., Chicago, Ill. 1882
Strawbridge, Geo., Philadelphia, Pa. 1876
Strawbridge, Jas. D., Danville, Pa. 1884
Strickler, A. H., Waynesboro, Pa. 1884
Strickler, A. W., Scottdale, Pa. 1884
Strickler, M. B., New Bloomington, Pa. 1884
Strong, H. W., Byron Centre, Mich. 1882
Strong, Thos. D., Westfield, N. Y. 1878
Struffer, C. C., W. Salem, Conn. 1882
Stuart, A. B., Santa Rosa, Cal. 1870
Stuart, J. H., Minneapolis, Minn. 1882
Stubbs, Geo. E., Philadelphia, Pa. 1884
Stubbs, J. H., London Grove, Pa. 1880
Sturgeon, W. H., Uniontown, Pa. 1884
Suesserott, J. L., Chambersburg, Pa. 1884
Sullivan, Jas. C., Cairo, Ill. 1873
Summers, T. O., Nashville, Tenn. 1884
Sutcliff, J. A., Indianapolis, Ind. 1884
Sutton, George, Aurora, Ind. 1881
Sutton, R. S., Pittsburg, Pa. 1883
Swan, C. Y., Morristown, N. J. 1883
Swan, S. M., Johnstown, Pa. 1884
Swartz, Joseph, Duncannon, Pa. 1866
Swasy, E. P., New Britain, Conn. 1880
Sweeney, W. W., Red Wing, Minn. 1882
Swett, John L., Newport, N. H. 1864
Sykes, W. H., Plymouth, Ohio. 1884

Tadlock, A. B., Knoxville, Tenn. 1879
Tagert, A. H., Chicago, Ill. 1882
Talbot, E. S., Chicago, Ill. 1881
Taliaferro, V. H., Atlanta, Ga. 1879
Talley, A. N., Columbia, S. C. 1858
Tallman, W. L., Mineral Point, Wis. 1884
Taneyhill, G. Lane, Baltimore, Md. 1884
Tarleton, R. H., Martinsville, Ind. 1882
Tauszky, Rudolph, New York, N. Y. 1876
Taylor, H. Genet, Camden, N. J. 1870
Taylor, H. M., Richmond, Va. 1881
Taylor, Isaac E., New York, N. Y. 1875
Taylor, Jas. R., New York, N. Y. 1878
Taylor, J. B., Cambridge, Mass. 1884
Taylor, J. E., Richmond, Ind. 1884
Taylor, J. M., Corinth, Miss. 1873
Taylor, M. A., Austin, Texas. 1874
Taylor, S., Morrison, Ill. 1883
Taylor, W. A., Booneville, Miss. 1879
Taylor, W. H., Cincinnati, Ohio. 1883
Taylor, W. H., Washington, D. C. 1884
Taylor, Wm. Terry, Philadelphia, Pa. 1869
Teal, Norman, Kendallville, Ind. 1878
Tebault, Alfred G., London Bridge, Va. 1884
Tebo, G. H., Mt. Sterling, Ill. 1883
Tefft, E. B., Albany, N. Y. 1880
Tefft, J. E., Springfield, Mo. 1882
Tefft, N. S., Plainview, Minn. 1882
Tenbrock, J., Paris, Ill. 1882

Terhune, A. A., Jefferson, Texas. 1884
Terrill, W. M., Laurenceburg, Ind. 1884
Tevis, Joel T., St. Paul, Ind. 1883
Thacker, L. G., Defiance, Ohio. 1878
Thayer, Alvin, Erie, Pa. 1878
Thayer, A. H., Grafton, W. Va. 1870
Thayer, F. C., Waterville, Me. 1884
Thayer, S. W., Burlington, Vt. 1882
Theobald, S., Baltimore, Md. 1884
Thomas, F. W., Marion, Ohio. 1883
Thomas, James Cary, Baltimore, Md. 1880
Thomas, J. D., Pittsburg, Pa. 1880
Thomas, J. G., Savannah, Ga. 1879
Thomas, J. P., Pembroke, Ky. 1875
Thomas, J. R., Bay City, Mich. 1876
Thomas, S. C., Milroy, Ind. 1882
Thomas, T. Gaillard, New York, N.Y. 1880
Thomason, H. D., Albion, Mich. 1884
Thompson, A. A., Flint, Mich. 1874
Thompson, A. G., Islip, N. Y. 1872
Thompson, A. N., Norfolk, N. Y. 1880
Thompson, B. S., Salisbury, Conn. 1876
Thompson, Frank K., Fitchburg, Mass. 1884
Thompson, G. W., Winnamac, Ind. 1883
Thompson, J. C., So. Bloomfield, O. 1883
Thompson, J. Ford, Washington, D.C. 1881
Thompson, J. L., Indianapolis, Ind. 1883
Thompson, Joseph W., Paducah, Ky. 1884
Thompson, L. G., Lucon, Ill. 1883
Thompson, W., Little Rock, Ark. 1882
Thomson, John A., Wrightsville, Pa. 1876
Thorne, S. S., Toledo, O. 1883
Thorne, Wm., Hastings, Minn. 1870
Thornton, G. B., Memphis, Tenn. 1877
Thornton, Samuel C., Moorestown, N. J. 1884
Thrane, J. H. A., Eau Claire, Wis. 1880
Tibbitts, L., Rockford, Ill. 1880
Tichenor, H. H., Newark, N. J. 1880
Tiffany, F. B., Kansas City, Mo. 1884
Tiffany, Louis McLane, Baltimore, Md. 1881
Tilden, G. H., Boston, Mass. 1881
Tilley, Robert, Chicago, Ill. 1884
Tipton, F., Selma, Ala. 1880
Tipton, Jos. S., Hillsville, Va. 1875
Tipton, W. R., Las Vegas, N. Mex. 1883
Tobie, E., Buffalo, N. Y. 1863
Todd, F. Walton, Stockton, Cal. 1879
Todd, J. F., Chicago, Ill. 1880
Todd, Jos. H., Wooster, O. 1883
Todd, J. Scott, Atlanta, Ga. 1871
Todd, S. S., Kansas City, Mo. 1873
Tomlinson, M. W., Battle Creek, Mich. 1877
Tompkins, Christopher, Richmond, Va. 1881
Tompkins, H. C., Knowlesville, N. Y. 1878
Tomson, J. J., Davenport, Iowa. 1880
Toner, Jos. Meredith, Wash'n, D. C. 1864
Topping, Geo. W., DeWitt, Mich. 1872
Tower, C., South Weymouth, Mass. 1884
Towers, F. E., Minneapolis, Minn. 1880
Towler, J. M., Columbia, Tenn. 1876
Townsend, G. J., So. Natick, Mass. 1870
Townsend, J. H., Holgate, Ohio. 1867
Townsend, M. W., Bergen, N. Y. 1876
Townsend, W. R., South Petersburg, Tenn. 1884
Tozier, L. L., Batavia, N. Y. 1878
Trabert, J. William, Annville, Pa. 1884
Trader, John W., Sedalia, Mo. 1873
Trask, Jas. D., Astoria, N. Y. 1880
Traver, R. D., Troy, N. Y. 1883
Traver, W. E., Fraser, Ia. 1883
Traver, W. H., Providence, R. I. 1880
Treichler, A. C., Lancaster, Pa. 1881
Treichler, C. Galen, Honeybrook, Pa. 1880
Tremaine, W. S., Buffalo, N. Y. 1878
Tressel, J. H., Alliance, Ohio. 1877
Troth, Samuel, N., Philadelphia, Pa. 1876
Truesdale, C., Rock Island, Ill. 1883
Tucker, Chester S., Coldwater, Mich. 1875
Tucker, J. C., Alameda, Cal. 1883
Tucker, J. H., N. C. 1881
Tuckerman, L. B., Cleveland, O. 1883
Tupper, Horace, Bay City, Mich. 1875
Tupper, J. C., Bay City, Mich. 1883
Turnbull, Laurence, Philadelphia, Pa. 1852
Turner, H. H., Ozark, Ark. 1883
Turner, S. W., Chester, Conn. 1880
Tweedle, J. B., Weatherly, Pa. 1883
Twiford, W. H., Geneva, Minn. 1883
Twiss, Edw., Athens, Mich. 1877
Twitmyer, J. H., Sharpesville, Pa. 1884
Tyler, C. V., Bay City, Mich. 1875
Tyler, Lachlan, Washington, D. C. 1884
Tyng, Anita E., Philadelphia, Pa. 1877
Tyrrell, Gerrard G., Sacramento, Cal. 1871
Tyson, James, Philadelphia, Pa. 1876

Udell, N., Centerville, Iowa. 1876
Uhler, John R., Baltimore, Md. 1876
Ulrich, Wm. B., Chester, Pa. 1875
Underhill, J. W., Cincinnati, Ohio. 1875
Underwood, W. J., Akron, Ohio. 1880
Unger, D. F., Mercersburg, Pa. 1880
Upham, E. T., West Randolph, Vt. 1884
Upshur, John N., Richmond, Va. 1881

Vail, Jonathan B., Lima, Ohio. 1884
Vale, J. Q. A., Homer, Minn. 1882
Valin, H. D., Chicago, Ill. 1882
Van Bibber, Claud, Baltimore, Md. 1881
Van Bibber, W. Chew, Baltimore, Md. 1865
Van Buren, E., Hooper, Neb. 1877
Vance, G. E., Ottawa, Ill. 1882
Van Deman, J. H., Chattanooga, Tenn. 1874
Van Derveer, A., Albany, N. Y. 1879
Vanderveer, John R., Brooklyn, N. Y. 1878
Van Deusen, H., Mineral Point, Wis. 1882
Van Dwyer, J., Syracuse, N. Y. 1883
Van Eman, John H., Kansas City, Mo. 1884
Van Horne, A. K., Jerseyville, Ill. 1873
Van Kirk, W. F., Grafton, W. Va. 1884
Van Velsor, J. B., Yankton, Dak. 1883
Van Velsor, Wm. D., Humboldt, Ioa. 1882
Van Voorhis, J. S., Belle Vernon, Pa. 1872
Varian, Wm., Titusville, Pa. 1876
Varick, Theodore R., Jersey City, N. J. 1853
Vastine, J. H., Danville, Pa. 1876
Vaughan, B. A., Columbus, Miss. 1872
Vaughan, J., Springfield, Mich. 1883
Vaughan, J. P., Glasgow, Mo. 1882
Vaughan, V. C., Ann Arbor, Mich. 1883
Vaughn, Charles E., Cambridge, Mass. 1884
Verity, W. P., Chicago, Ill. 1882
Vermyne, J. J. B., New Bedford, Mass. 1880
Vincent, H. C., Guilford, Ind. 1875
Vinnedge, W. W., La Fayette, Ind. 1873
Vinton, Fred. A., Providence, R. I. 1878
Vivian, Godfrey, Alexandria, Minn. 1881
Von Klein, C. H., Hamilton, O. 1883
Voorhees, C. H., New Brunswick, N. J. 1876

Wadsworth, J. L. R., Collinsville, Ill. 1873
Waggoner, Jos., Ravenna, Ohio. 1882
Wainwright, W. A. M., Hartford, Conn. 1873
Waitzfelder, E., New York, N. Y. 1880
Wakefield, A. N., Johnstown, Pa. 1884
Wakefield, T. E., Fair Haven, Vt. 1880
Walbridge, J. S., Berlin, Wis. 1883
Walker, Alonzo B., Canton, Ohio. 1883
Walker, D. R., Reece's Mills, Ind. 1881
Walker, H. O., Detroit, Mich. 1880
Walker, James B., Philadelphia, Pa. 1884
Walker, M. M., Richmond, Va. 1881
Walker, W. J., La Fayette, Ind. 1883
Walker, W. S., La Fayette, Ind. 1884
Wall, Hermon J., Richland Centre, Wisconsin. 1882
Wall, J. Owen, Huntington, W. Va. 1878
Wall, J. P., Tampa, Fla. 1879
Wallace, D. R., Waco, Tex. 1880
Wallace, Jas. H., Monmouth, Ill. 1877
Walsh, Ralph S. L., Washington, D. C. 1870
Walter, C. H. B., Harrisburg, Pa., 1884
Walter, Hiram, Eton Rapids, Mich. 1884
Walters, D., Bellefontaine, Ohio. 1883
Walton, Jane E., Chicago, Ill., 1884
Wands, Wm., Indianapolis, Ind. 1881
Ward, A. J., Madison, Wis. 1876
Ward, E. B., Laingsburg, Mich. 1882
Ward, Ford M., Marshalltown, Iowa. 1882
Ward, G. B., Fairbank, Ohio. 1883
Ward, W. H., Des Moines, Iowa. 1882
Warden, A. W., New York, N. Y. 1882
Wardner, Horace, Anna, Ill. 1860
Warne, George, Independence, Iowa. 1880
Warner, C. F., Mankato, Minn. 1882
Warner, Levi F., Boston, Mass. 1873
Warren, C. E., Boston, Mass. 1884
Warren, Joseph H., Boston, Mass. 1879
Warth, E. J., Nevada, Mo. 1882
Waterman, Luther D., Indianapolis, Ind. 1870
Waters, J. C., Chicago, Ill. 1882
Wathen, W. H., Louisville, Ky. 1883
Watkins, Claib., Little Rock, Ark. 1882
Watson, B. A., Jersey City, N. J. 1872
Watson, Irving A., Concord, N. H. 1884
Watson, Wm., Dubuque, Iowa. 1876
Weaver, James M., Dayton, Ohio. 1883
Weaver, John B., Mt. Vernon, Ind. 1884
Weaver, J. G., Strasburg, Pa. 1882
Weaver, J. K., Norristown, Pa. 1878
Weaver, W. G., Wilkesbarre, Pa. 1880
Webber, F. W., Newton, Mass. 1882
Webber, I. B., Warsaw, Ind. 1884
Webster, C. E., Portland, Me. 1884
Webster, David, New York, N. Y. 1880
Webster, J. C., Lafayette, Ind. 1880
Webster, J. R., Monmouth, Ill. 1873
Wedgewood, M. C., Lewiston, Me. 1884
Weeks, A. P., Chelsea, Mass. 1880
Weeks, S. H., Portland, Me. 1876
Weidman, W. Murray, Reading, Pa. 1876
Weir, F. A., Jesup, Iowa. 1882
Weisse, Faneuil D., New York, N. Y. 1872
Weist, Jacob R., Richmond, Ind. 1876
Welch, G. T., Keyport, New Jersey. 1884
Welch, Ira L., Humboldt, Iowa. 1884
Welch, James, West Winsted, Conn. 1884
Welch, J. L., Humboldt, Iowa. 1883
Welch, W. B., Fayetteville, Ark. 1873
Welch, Wm. H., New York, N. Y. 1884
Welch, Wm. M., Philadelphia, Pa. 1872
Welch, W. W., Norfolk, Ct. 1883
Welchams, G. R., Lancaster, Pa. 1884
Weldon, A. J., Paris Landing, Tenn. 1877
Welfly, D. P., Cumberland, Md. 1884
Weller, J. H., Cedar Rapids, Iowa. 1884
Wellford, J. S., Richmond, Va. 1876
Wells, Ira R., Geneseo, Ill. 1873
Wells, Wm. B., Red Clay, Ga. 1884
Welser, James, Winsted, Conn. 1884
Welsh, D. Emmet, La Trobe, Pa. 1884
Wenz, Julius, Lancaster, N. T. 1882
Werth, R., Columbus, Ohio. 1883
West, George Wm., Washington, D.C. 1881
West, John, Manchester, N. H. 1878
West, M. Calvin, Rome, N. Y. 1864

West, Washington, Belleville, Ind.
Westmoreland, W. F., Atlanta, Ga.
Wey, Wm. C., Elmira, N. Y.
Weymouth, H. A., Andover, N. H.
Whann, W. L., Franklin, Pa.
Wheaton, C. A., St. Paul, Minn.
Wheeler, Jas. H., Dover, N. H.
Whelan, A. F., Hillsdale, Mich
Whitaker, J. S., Millville, N. J.
Witbeck, C. E., Cohoes, N. Y.
Whitbeck, J. W., Rochester, N. Y.
White, E. L., Middlesex, Mass.
White, F. V., New York, N. Y.
White, Horace C., E. Somersville, Mass.
White, James L., Farmville, Va.
White, Jos. A., Richmond, Va.
White, R. B., Ennis, Texas.
White, Wm. T., New York, N. Y.
Whitehead, A. G., Waynesboro', Ga.
Whiteley, A. F., Frederica, Del.
Whitley, James D., Petersburg, Ill.
Whitley, John L., Osage, Iowa.
Whitman A. F., Spring Valley, Minn.
Whitman, Frank, Bellows Falls, Vt.
Whitney, D. B., East Norwich, N. Y.
Whitridge, W., Baltimore, Md.
Whittaker, J. T., Cincinnati, Ohio.
Whittemore, F. H., New Haven, Conn.
Whittemore, W. K., Elk River, Minn.
Whitton, E. M., Nebraska City, Neb.
Whitwell, W. S., San Francisco, Cal.
Wiensma, C., Wahpeton, Dakota.
Wiest, J., York, Pa.
Wiggins, Hiram, Elbridge, N. Y.
Wigginton, R. M., Mendota, Wis.
Wight, Jarvis S., Brooklyn, N. Y.
Wight, O. W., Milwaukee, Wis.
Wikoff, J. H., Princeton, N. J.
Wilcox, L. S., Champaign, Ill.
Wilder, B. G., Ithaca, N. Y.
Wilder, F. M., Chicago, Ill.
Wile, W. C., Sandy Hook, Conn.
Wiles, Frank M., Spencer, Ind.
Wilkins, A. C., Oskaloosa, Iowa.
Wilkins, S. M., Eaton Rapids, Mich.
Wilks, W. H., Waco, Texas.
Willard, De Forrest, Philadelphia, Pa.
Willard, E. R., Wilmington, Ill.
Willey, A. G., Fostoria, Ohio.
Williams, Amer S., Fostoria, Ohio.
Williams, Elkanah, Cincinnati, O.
Williams, H., East Saginaw, Mich.
Williams, Jacob L., Boston, Mass.
Williams, Louis, Marion, Ind.
Williams, R., Marcelline, Ill.
Williams, Robt. R., Manning, Iowa.

1881 Williams, Roger, Pittsburg, Pa.
1872 Williams, S. T., Kendallville, Ind.
1864 Williams, William H., Brooklyn, N. Y.
1881 Williams, W. L., Ridgway, Pa.
1883 Williamson, Jeff., Ottumwa, Iowa.
1882 Williamson, Nich., New Brunswick,
1872 N. J.
1882 Wilson, A. H., South Boston, Mass.
1880 Wilson, C. A., Omaha, Neb.
1880 Wilson, C. G., St. Mary's, Pa.
1880 Wilson, E. J., Mt. Vernon, Ohio.
1884 Wilson, H., Bradford, Pa.
1880 Wilson, H. Augustus, Philadelphia, Pa.
Wilson, H. P. C., Baltimore, Md.
1884 Wilson, Jas. C., Philadelphia, Pa.
1881 Wilson, Joseph, U. S. N., Philadelphia,
1879 Pa.
1883 Wilson, J. E., Rochester, Mich.
1866 Wilson, J. H., Beaver, Pa.
1880 Wilson, J. T., Fort Ewell, Texas.
1884 Wilson, J. T., Galesburg, Ill.
1880 Wilson, J. T., Quincy, Ill.
1884 Wilson, L. D., Wheeling, W. Va.
1882 Wilson, W. F., Ironton, Ohio.
1884 Wilson, Wm. V., Dayton, O.
1880 Winslow, R., Baltimore, Md.
1883 Winston, Gustavus S., New York,
1881 N. Y.
Winton, R., Muncie, Ind.
1884 Wireback, I. J., St. Petersburg, Pa.
1884 Wise, Simon T., Millersburg, O.
1882 Wise, T. N., Covington, Ky.
1884 Wishard, W. N., Indianapolis, Ind.
1884 Wisseler, F. W., St. Louis, Mo.
1883 Wittemyer, J. D., Brooklyn, Ohio.
1884 Wolcott, Samuel G., Utica, N. Y.
1882 Wood, C. B., Monongahela, Pa.
1880 Wood, Charles S., New York, N. Y.
1879 Wood, E. A., Pittsburg, Pa.
1884 Wood, H. D., Angola, Ind.
1882 Wood, J. B., Waverly, Mo.
1880 Wood, Luther H., Farrington, Conn.
1874 Wood, M. Le G., Montgomery, Ala.
1880 Wood, Sol. A., Angola, Ind.
1884 Wood, Thomas F., Wilmington, N. C.
1882 Wood, T. F., Metz, Ind.
1882 Woodbridge, John Elliott, Youngs-
1884 town, Ohio.
1880 Woodbury, Frank, Philadelphia, Pa.
1872 Woodend, Wm. D., Huntingdon, N.Y.
1883 Woodruff, L., Alton, Ohio.
1867 Woodruff, W., Thomaston, Conn.
1879 Woods, D. F., Philadelphia, Pa.
1883 Woods, J. R., Warren, O.
1881 Woods, Joseph T., Toledo, Ohio.
1867 Woods, Laird, N. Wheatland, Pa.
1882 Woods, W. W., Stanton, Pa.
1884 Woodward, Adrian T., Brandon, Vt.

1882 Woodward, Ashbel, Franklin, Conn. 1849
1883 Woodworth, D. W., Ellsworth, Wis. 1882
1860 Woodworth, Benjamin Studley, Fort
1883 Wayne, Ind. 1856
1882 Woolen, C. W., Randleman, N. C. 1882
Woollen, G. V., Indianapolis, Ind. 1884
1880 Woolsey, E. H., Oakland, Cal. 1882
1883 Wooten, T. D., Austin, Texas. 1882
1884 Worden, A. L., Des Moines, Iowa. 1883
1884 Work, J. A., Elkhart, Ind. 1883
1880 Worley, George N., Poe, Ind. 1881
1883 Worley, J., Marshalltown, Iowa. 1882
1881 Worrall, Jno. W., Brownsville, Pa. 1883
1881 Worrell, J. P., Terre Haute, Ind. 1884
1884 Worrell, T. F., Bloomington, Ill. 1882
Worthington, D. H., Fairfield, Iowa. 1884
1875 Wright, Arthur L., Carroll City, Iowa. 1882
1883 Wright, C. O., Cincinnati, Ohio. 1884
1882 Wright, John, Clinton, Ill. 1867
1873 Wright, Olin S., Bradford, Pa. 1881
1882 Wright, Thomas R., Augusta, Ga. 1879
1882 Wright, Wm. E., Knoxville, Iowa. 1884
1883 Wrightson, James T., Newark, N. J. 1884
1883 Wuchten, G. H., Wadsworth, Ohio. 1883
1884 Wunderlich, F. W., Brooklyn, N. Y. 1880
1880 Wurtz, L. H., Coldwater, Mich. 1882
Wyckoff, C. C., Buffalo, N. Y. 1863
1865 Wylie, A. N., Ripley, Ohio. 1867
1879 Wylie, W., Wausau, Wis. 1882
1883 Wylie, W. Gill, New York, N. Y. 1876
1884 Wyman, Hal. C., Detroit, Mich. 1878
1867 Wyman, Walter, Baltimore, Md. 1884
1884

1876 Xanton, Frank A., Avoca, Iowa. 1883
1883

1866 Yale, L. M., New York, N. Y. 1880
1882 Yarnall, J. H., Georgetown, D. C. 1884
1867 Yates, A., Washington, Mich. 1883
1870 Yates, W. J., Kearney, Mo. 1877
1874 Yoder, S. S., Lima, Ohio. 1883
1882 Yost, G. P., Logansville, Pa. 1883
1881 Young, D. H., Columbia, Mo. 1881
1881 Young, F. J., Bridgeport, Conn. 1884
1880 Young, H. B., Burlington, Iowa. 1882
1879 Young, John F., Kingsbury Point,
1876 Mass. 1883
Young, J. Wm., Bloomfield, Iowa. 1884
1869 Young, Stephen J., Terre Haute, Ind. 1877
1877 Young, Theodore J., Titusville, Pa. 1874
1884 Young, Wm., New York, N. Y. 1883
1883 Yount, Silas T., La Fayette, Ind. 1878
1878

1876 Zeigler, George J., Philadelphia, Pa. 1853
1883 Zenner, P., Cincinnati, Ohio. 1883
1884 Ziegler, Jas. P., Mt. Joy, Pa. 1881
1883 Ziegler, J. L., Mt. Joy, Pa. 1877
1883 Ziegler, S. P., Carlisle, Pa. 1884
1853 Zinke, E. G., Cincinnati, Ohio. 1884

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